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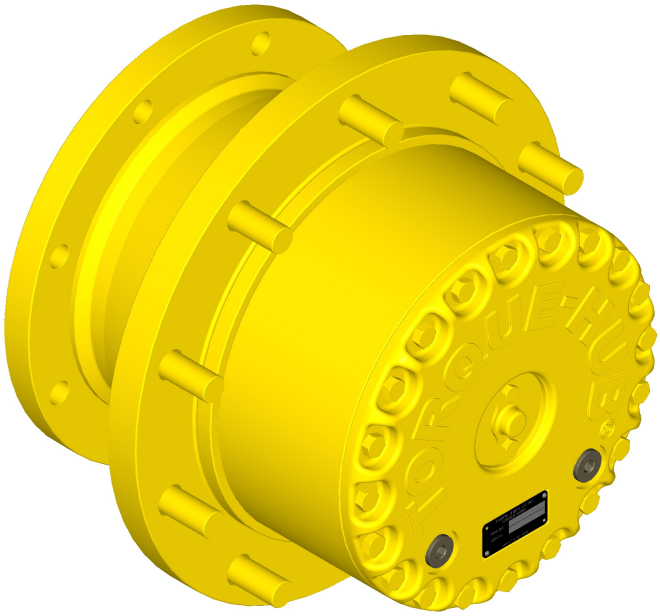
Torque-Hub® Planetary Final Drive
W5B5/C5 Series Service Manual



Rev 06/08/12

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Features and specifications are subject to change without notice.

Planetary Final Drive Service Manual
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Planetary Final Drive Service Manual
Introduction

This manual is a step-by-step guide to the disassembly and assembly of the W5B5 and W5C5 Torque-Hub® units. It is designed for the customer or mechanic who is repairing this particular Torque-Hub® model.

Users of this manual should note that each part mentioned is followed by an identification number enclosed in parentheses. These part numbers may be referred to in the Parts List and Assembly Drawing sections of this manual.

Specialized tools used to assemble this unit are noted in the assembly procedures and diagrammed in the Assembly Tools section.

Users should familiarize themselves with the procedures for roll and leak testing, as well as bolt tightening and torquing found on the following three pages before starting any repairs.

Standard safety practices should be followed during the disassembly and assembly procedures described. Safety glasses and safety shoes should be worn, and heavy, heat resistant gloves should be used when handling heated components. Be especially alert when you see the word **CAUTION**. This indicates that a particular operation could cause personal injury if not performed properly or if certain safety procedures are not followed. The word **NOTE** is used to bring attention to certain procedures or helpful hints that will aid in the disassembly and assembly process.

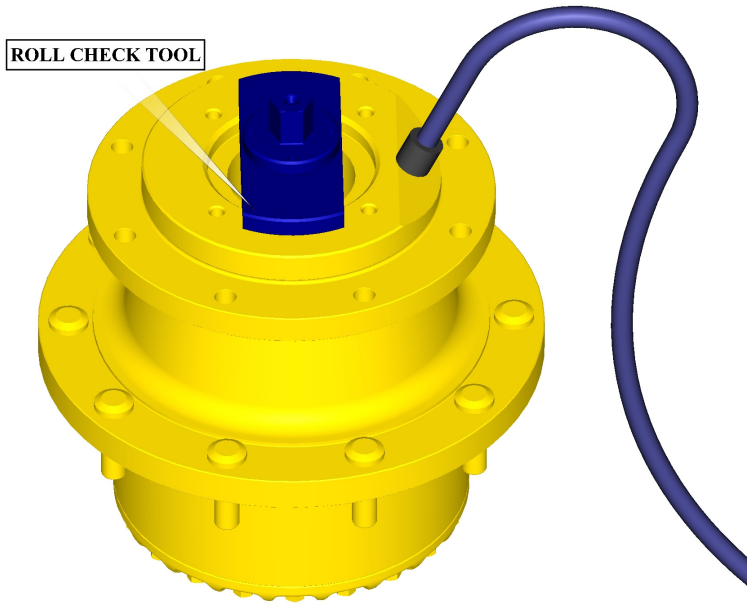
Planetary Final Drive Service Manual
Brake Test

The Brake Test

To perform a brake check, use a M12x1.5 metric fitting. Install a hydraulic hand pump with pressure gauge into brake port in spindle (1A) using metric thread fitting.

Place ROLL TEST Tool (refer to table on page 9) into input coupling.

Apply 25 in-lbs torque. While trying to rotate tool, pump the handle on the hydraulic hand pump and increase the pressure until the brake releases. The brake is released when you are able to rotate the tool.



Record the release pressure. If the brake does not release within limits shown in the brake chart on page 6, check to see if it has the proper number of springs using the **SPRING CHECKING PROCEDURE.** Increase to maximum pressure (refer to brake chart on page 6) and hold at that pressure for one minute. If the brake does not leak or lose pressure, the unit has passed the brake test. If the brake loses pressure, attempt to repair the leak using the leak repair procedure at end of this procedure.

While brake is still released, roll check the unit for one revolution of the output member by rotating the tool. Bleed off pressure slowly while rotating the ROLL TEST Tool.

Record the pressure at which the brake locks up. Using a clean rag, wipe off excess fluid from around the brake port and install the pipe plug.

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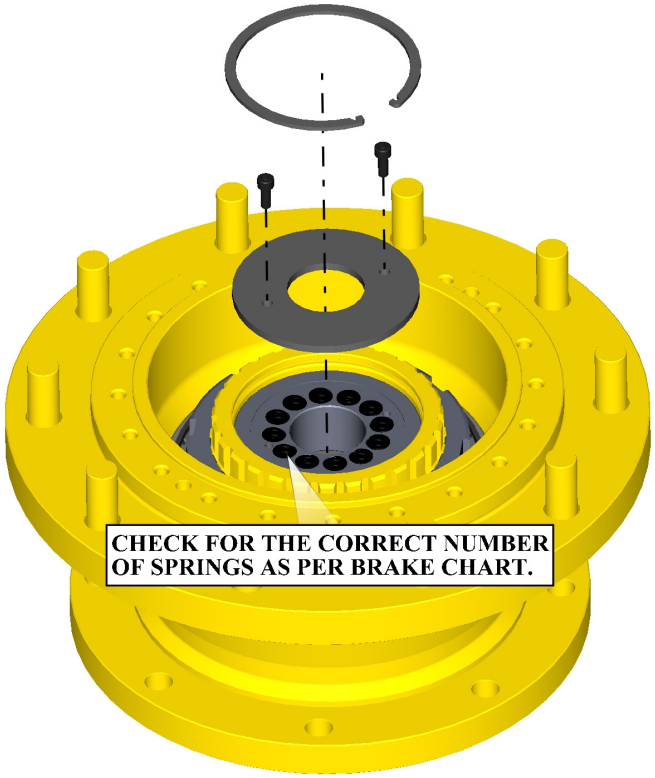
BRAKE CHART							
6th DIGIT IN MODEL CODE (INPUT BRAKE)	BRAKE PART NUMBER	NUMBER OF SPRINGS	RELEASE PRESSURE MIN (psi)	RELEASE PRESSURE MAX (psi)	FULL RELEASE PRESSURE (psi)	MAXIMUM PRESSURE (psi)	BRAKE TORQUE (in-lbs)
P	902442F	04	58	99	101	1000	1224
N	902442E	05	72	123	125	1000	1531
M	902442D	06	87	147	150	1000	1835
L	902442C	08	115	195	199	1000	2433
K	902442B	10	143	241	248	1000	3019
J	902442A	12	170	288	297	1000	3591

SPRING CHECKING PROCEDURE:
Install two bolts into holes in the brake piston. Tighten bolts in such a way to ensure the brake piston remains straight while being compressed into the brake cavity of the spindle.

Carefully remove the retaining ring from the spindle. Slowly remove bolts from the input brake. Remove the cover plate from the end of the input brake and count the number of springs in brake. If number of springs matches the number in the **BRAKE CHART**, go to the next step. If the number of springs does not match the number in the **BRAKE CHART** above, install the correct number of springs.



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Install the Brake Cover Plate using two bolts. Tighten bolts in such a way that to ensure the Brake Cover Plate remains straight while being compressed into the brake cavity of the spindle.

Install the large retaining ring into the groove in spindle (1A), making sure it is seated properly. Remove all remaining bolts from the brake piston and discard.

NOTE: USE CAUTION WHEN REMOVING BOLTS AS THEY ARE SUBJECT TO SPRING PRESSURE. MAKE SURE THE RETAINING RING IS SECURED BEFORE REMOVING BOLTS.

Re-test the input brake. If release and/or lockup pressures still do not match the brake chart, contact the Oerlikon Fairfield service department.

BRAKE LEAK REPAIR PROCEDURE:
Install two bolts into holes in the Brake Piston. Tighten bolts in such a way to ensure the Brake Cover Plate remains straight while being compressed into brake cavity of Spindle.

Carefully remove the Retaining Ring from the Spindle. Using two eyebolts threaded into opposite holes in the Brake Piston, remove the Brake Piston from the Spindle.

Check O-rings, Backup Rings, and brake cavity in Spindle for damage. If no damage is found, reinstall the Input Brake according to the Input Brake Installation Procedure in the assembly instructions chapter and perform pressure test again. If brake still leaks, contact the Oerlikon Fairfield service department.

Reference: Sample Model W5B5/W5C5_ X_ _ _ _. The ‘X’ is the brake option (Model Code). Consult Oerlikon Fairfield for other brake options.

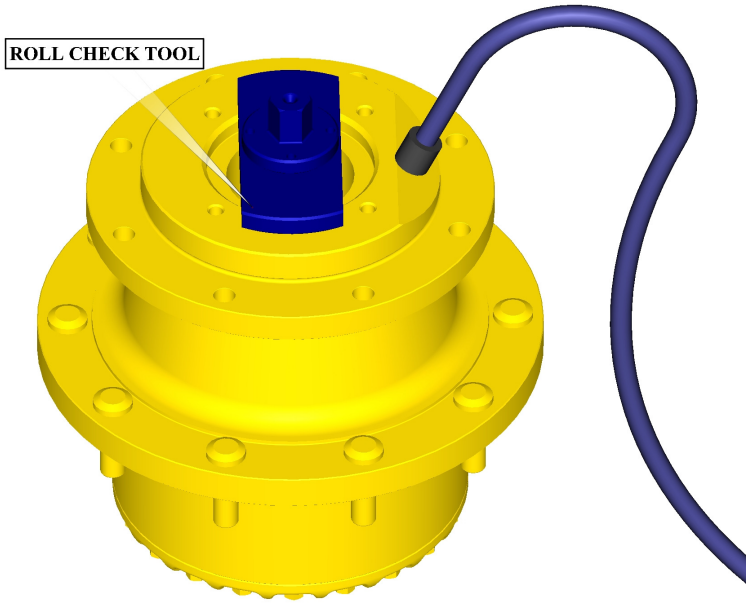
NOTE: Failure to perform this test may result in damaged or ineffective brake parts.

Planetary Final Drive Service Manual
Roll and Leak Test

Torque-Hub® units should always be roll and leak tested before disassembly (if possible) and after assembly to make sure the unit's gears, bearings and seals are working properly. The following information briefly outlines what to look for when performing these tests.

The Roll Test

The purpose of the roll test is to determine if the unit's gears are rotating consistently, easily and properly. Release the brake by applying 400 Psi to the brake port. To perform a roll test, use the recommended tool from the table on page 9 (or something equivalent) to apply constant rotational force to the input of the gearbox. If more drag is felt in the gears only at certain points, then the gears are not rolling consistently and easily and should be examined for improper installation or defects. Some gear packages roll with more difficulty than others. Do not be concerned if the gears in the unit seem to roll hard as long as they roll with *consistency*. Rotate the gearbox both clockwise and counterclockwise the same number of turns as the ratio of the unit. The gearbox ratio is the same number as the last three numbers on the ID tag.



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Model Code	Roll Test Tool
W5B5xx3xxx	NA
W5B5xx4xxx	NA
W5B5xx7xxx	NA
W5B5xx8xxx	T163056
W5C5xx3xx	NA
W5C5xx4xx	T198122
W5C5xx7xx	NA
W5C5xx8xx	NA

The Leak Test

The purpose of a leak test is to make sure the unit is airtight. To perform a leak test, use the leak test fixture from the table on page 10. If the tool is not available, the gearbox must be sealed to perform the test. This can be accomplished by assembling the sealed input device onto the gearbox at the input end and replace one of the oil plugs with an air chuck. DO NOT EXCEED 10 PSI PRESSURE DURING THE LEAK TEST. Higher pressure will create a false sealing effect in assemblies with lip-seals. The unit has a leak if the pressure gauge reading on your leak check fitting starts to fall after the gearbox has been pressurized and allowed to equalize. Leaks will most likely occur at the pipe plugs, the main seal or wherever o-rings or gaskets are located. The exact location of a leak can usually be detected by brushing a soap and water solution around the main seal and where the o-rings or gaskets meet on the exterior of the unit and then checking for air bubbles. If a leak is detected in a seal, o-ring or gasket, the part must be replaced and the unit rechecked. Leak test at 10 psi for 20 minutes.

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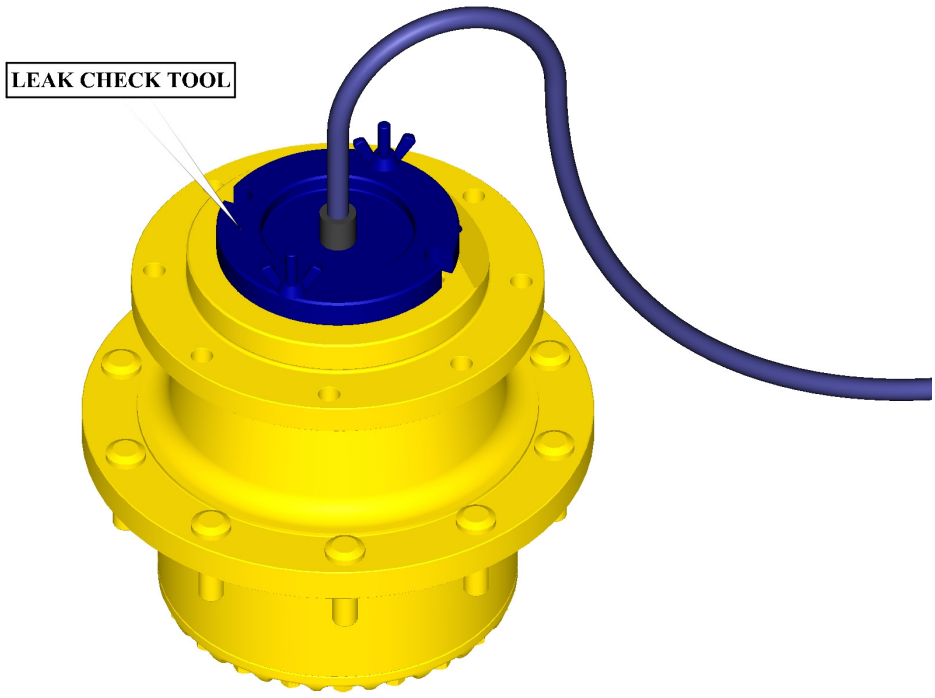
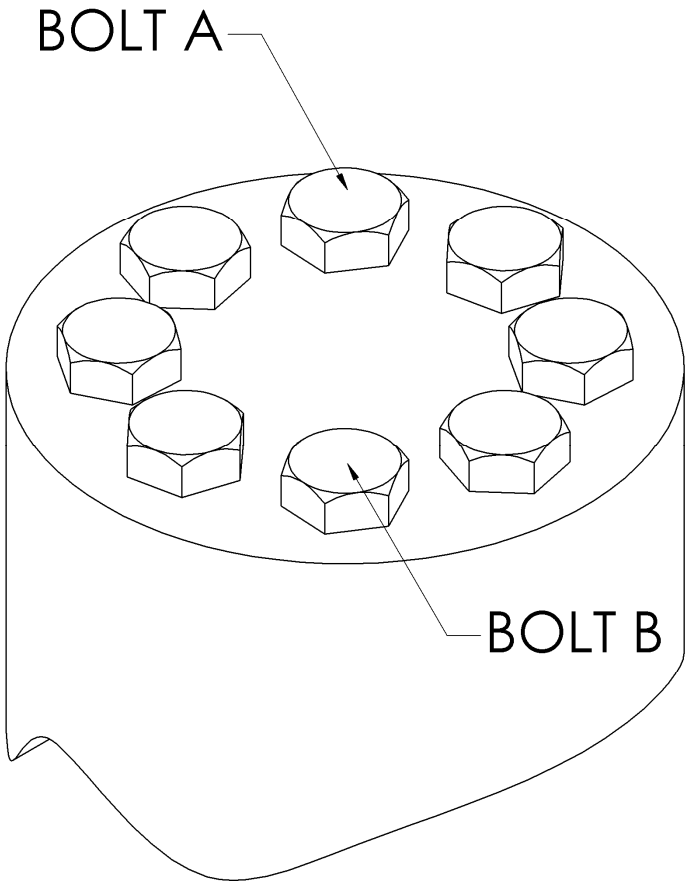


Model Code	Leak Test Tool
W5B5xxxxxx	T201476
W5C5xxxxxx	T205708

Planetary Final Drive Service Manual
Tightening and Torquing Bolts

If an air impact wrench is used to tighten bolts, extreme care should be taken to ensure the bolts are not tightened beyond their specified torque. The following steps describe how to tighten and torque bolts or socket head cap screws in a bolt circle.



1. Tighten (but do not torque) bolt “A” until snug.
2. Go to the opposite side of the bolt circle and tighten bolt “B” until equally snug.
3. Crisscross around the bolt circle and tighten the remaining bolts.
4. Use a torque wrench to apply the specified torque to bolt “A.”
5. Using the same sequence, crisscross around the bolt circle and apply an equal torque to the remaining bolts.

Planetary Final Drive Service Manual
Lubrication Information

General Properties

The lubricant used in most Torque-Hub® drives should be petroleum-based gear fluid containing anti-oxidation, anti-foaming and extreme pressure additives. The lubricant should have a minimum viscosity index of 95 cst and maintain a minimum viscosity of 40 cst under normal operating conditions. Some applications require special considerations; consult the machine manufacturer and Oerlikon Fairfield for more additional information.

The table below lists the recommended viscosities for various ambient operating temperatures. These recommendations are based on temperature rise of 50° to 100°F at normal operating conditions.

	Differential Planetary		Simple Planetary	
Ambient Temperature	ISO Index	AGMA Lubricate Number	ISO Index	AGMA Lubricate Number
-40° to -5° F(1)	VG100	3EP	VG100	3EP
-5°to 40° F	VG150	4EP	VG100	3EP
40° to105° F	VG220/VG320	5EP/6EP	VG150/VG220	4EP/5EP
105° to 150° F(2)	VG460	7EP	VG320	6EP

Footnotes

1. For operation in this ambient temperature range, synthetic oil is recommended with a pour point of 10°F lower than the minimum ambient temperature.
2. For operation in this ambient temperature range, synthetic oil is recommended for proper lubricant life at elevated temperatures.

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Maintenance

Oil amounts for each series of Torque-Hub® drives are indicated in the appropriate series literature. An initial oil change should be made after the first 50 hours of operation. Subsequent oil changes should be made at 1,000 hour intervals or annually, whichever comes first.

Oil temperatures should be not higher than 160° to 180°F for continuous operation, and no higher than 200°F for intermittent operation. For special applications, high horsepower, high speeds or wide temperature changes, please consult Oerlikon Fairfield.

Oil Fill Level

When the Torque-Hub® unit is mounted horizontally, unless otherwise specified, the gearbox should be filled half-full of oil. Consult the appropriate series literature for approximate fill volumes. Vertically mounted Torque-Hub® units may require special lubrication procedures. Please contact Oerlikon Fairfield for vertically mounted applications.

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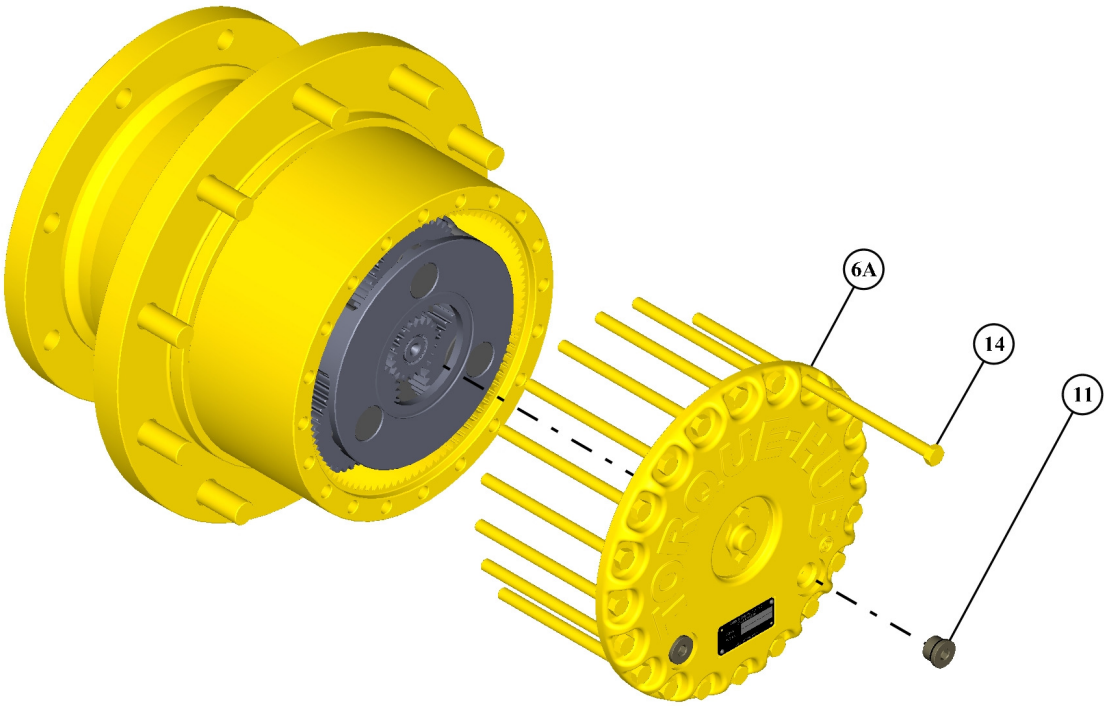

1. Perform a roll check and a leak check prior to disassembling the unit.
2. Remove the two magnetic Pipe Plugs (11) and drain the oil out of the gearbox.

   NOTE: Record the condition and volume of the oil.
3. Remove Bolts (14) from the Cover Subassembly.
4. Lift the Cover Subassembly off of the unit.

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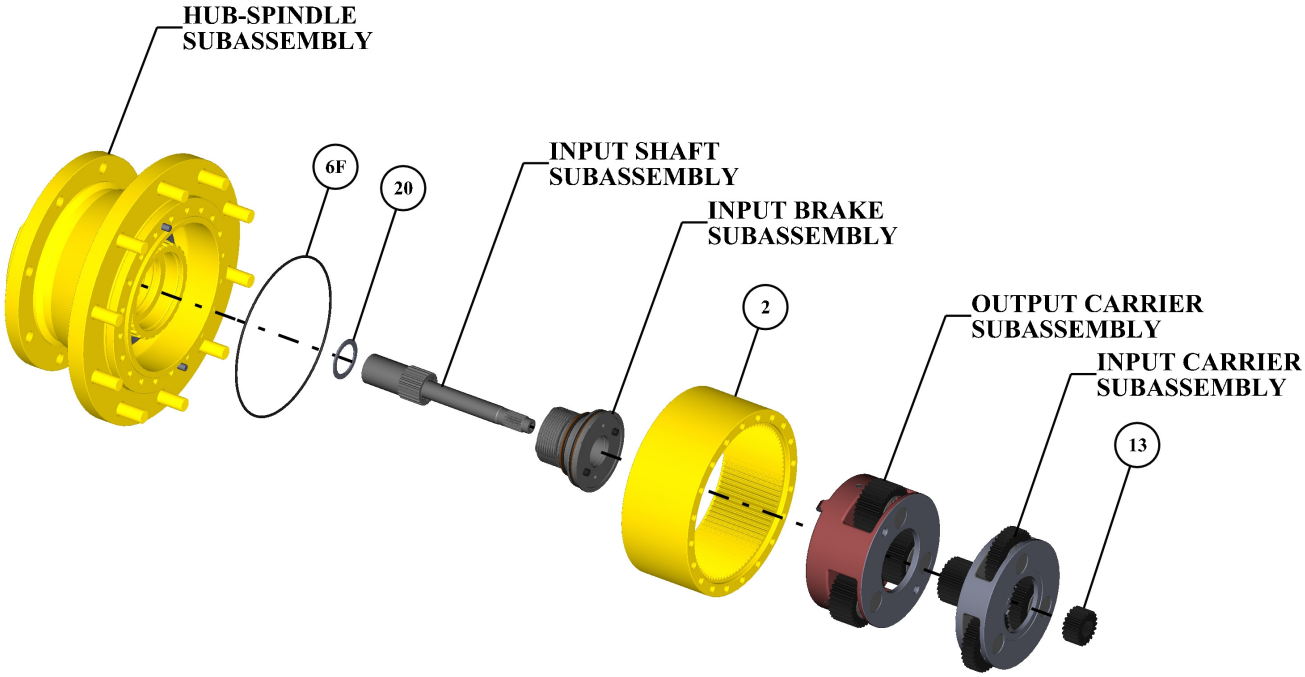


5. Remove the Input Sun Gear (13) if applicable.

6. Lift out the Input Carrier Subassembly.

7. Remove the Output Carrier Subassembly out of the Hub-Spindle Subassembly.

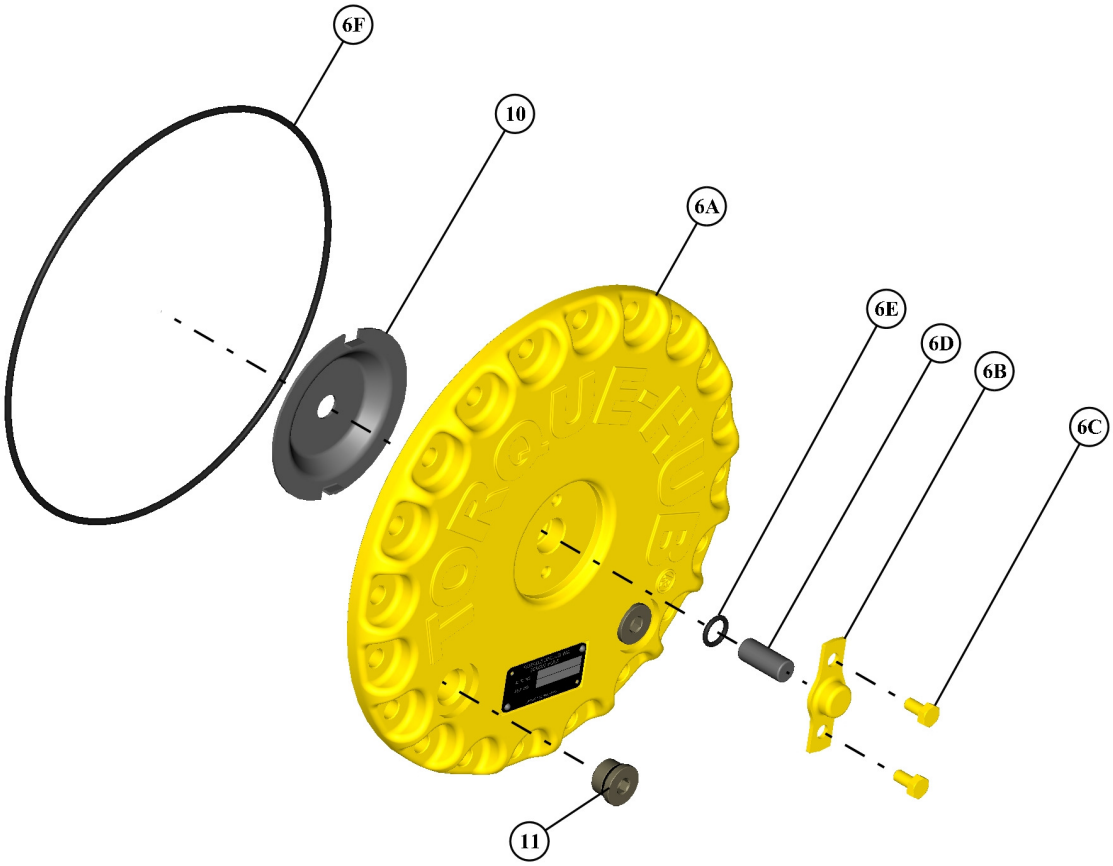
8. Lift the Ring Gear (2) off the Hub-Spindle Subassembly.

9. Remove the Brake Subassembly out of the Spindle Subassembly (Refer to page 21 for Input Brake Disassembly).

10. Remove O-Ring (6F) from the Housing (1G) and discard.

This concludes the Main Disassembly.

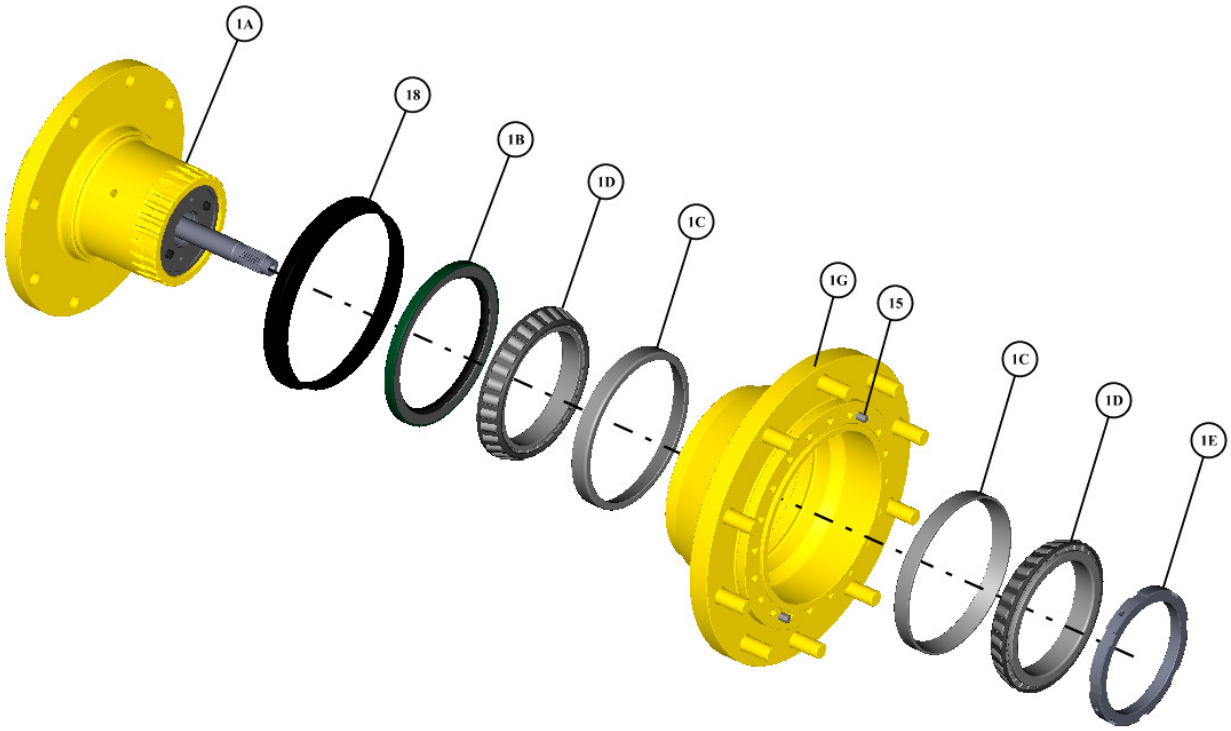
Cover Disassembly



1. Remove O-Ring (6F) from groove in the Cover (6A) and discard O-Ring.
2. Remove Thrust Washer (10) from pockets in the Cover (6A).
3. Remove Pipe Plugs (11) from the Cover (6A).
4. Remove the Hex Head Bolts (6C) from the Disengage Cap (6B), if required.
5. Remove the Disengage Cap (6B) from the Cover (6A).
6. Pull the Disengage Rod (6D) out of the Cover (6A).
7. Remove O-Ring (6E) from the Cover (6A) and discard.

This concludes the Cover Disassembly.

Planetary Final Drive Service Manual
Housing-Spindle Disassembly



1. Set the unit on a bench so that the Spindle (1A) flange is down.

2. Remove Bearing Nut (1E) from the Spindle (1A).

3. Turn the unit over and carefully place the unit on a support base until the Spindle (1A) rests on it. Insure there is enough gap to lower the Housing (1G) down.

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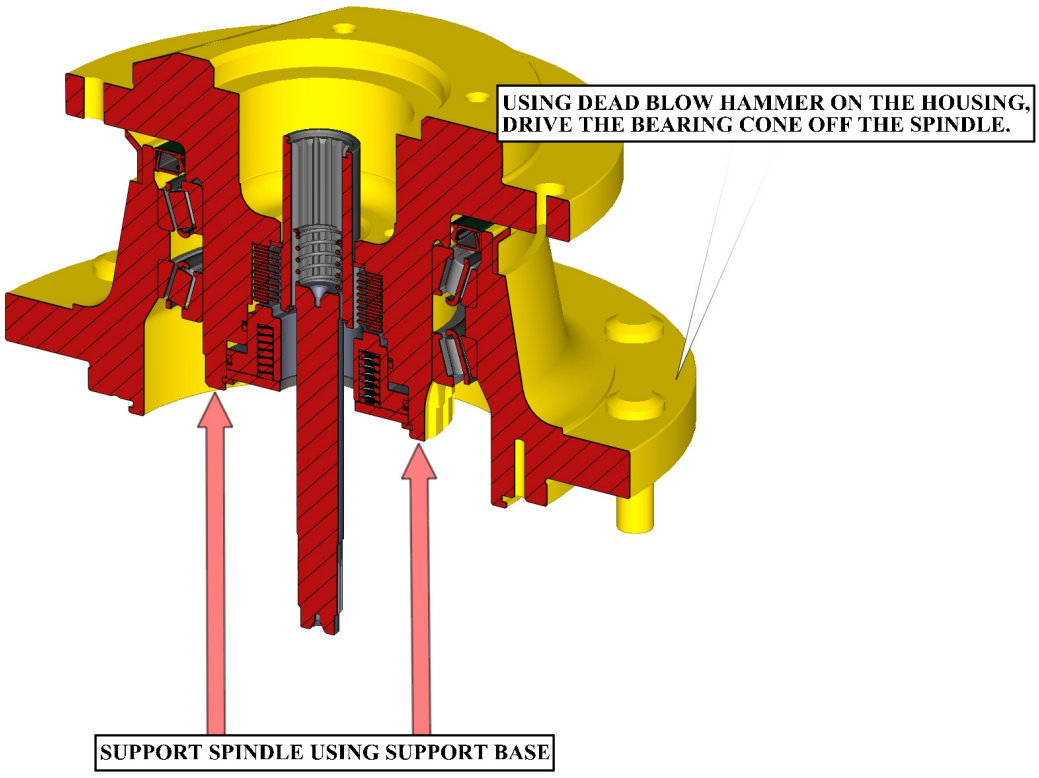


4. Use a dead blow hammer on the Housing (1G) flange to drive the inboard Bearing Cone (1C) off of the Spindle.

5. Lift the Spindle (1A) out of the Housing (1G).

6. If necessary, remove the Boot Seal (18).

7. Remove the Lip Seal (1B) from the Housing (1G) .

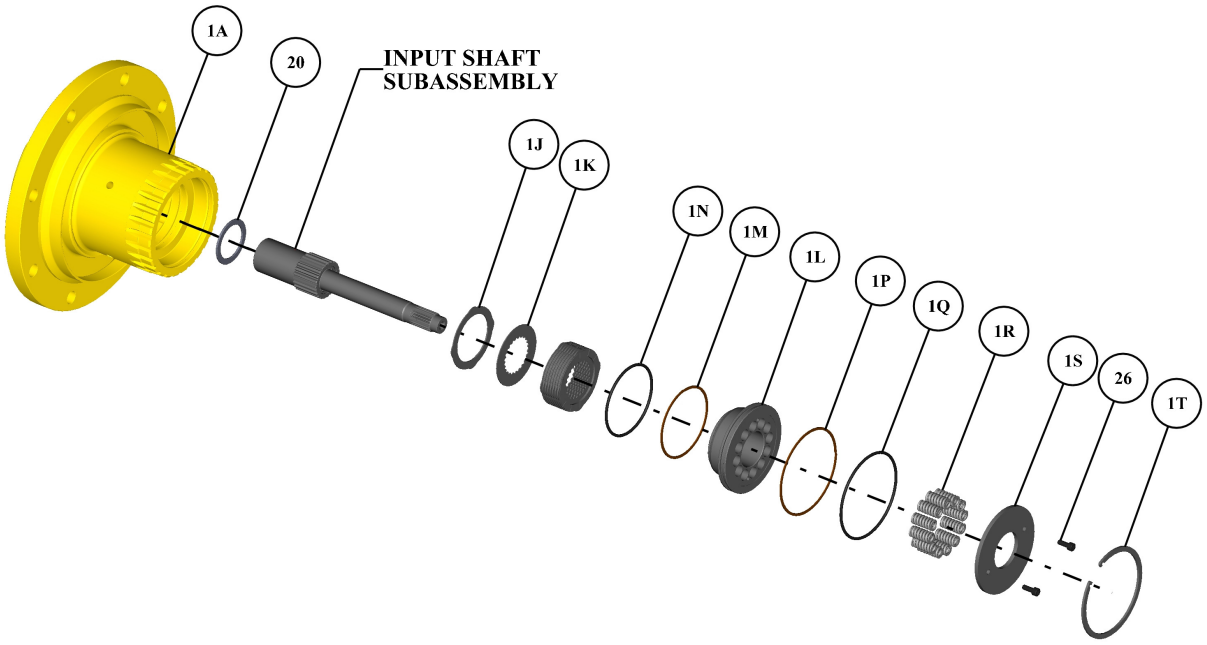
8. Using a hammer and punch drive the inboard Bearing Cup (1C) out of the Housing (1G). Be careful not to damage the counter bore in the housing.

9. Turn the Housing (1G) over and drive the outboard Bearing Cup (1C) out of the Housing. Be careful not to damage the counter-bore in the housing.

10. Remove the Bearing Cone (1D) from the Spindle (1A).

This concludes the Housing-Spindle Disassembly.

Planetary Final Drive Service Manual
Input Brake Disassembly



1. Place the Hub/Spindle assembly with the large opening facing upward.

2. Insert and tighten the M6 Socket Head Cap Screws (26) into the Brake Piston (1L) to compress the Springs (1R) and relieve pressure on the Retaining Ring (1T).

   CAUTION: Safety glasses must be worn during this next step.

   NOTE: Insure Step 2 is completed before doing this next step.

3. Using retaining ring pliers, remove Retaining Ring (1T) which holds the Brake Piston Subassembly in place.

4. Lift Brake Piston Assembly out of the Spindle (1A). If the Brake Piston Subassembly will not lift out, use a dead blow hammer to lightly tap the Brake Piston (1L) out of the Spindle (1A). Remove Input Shaft Subassembly when the Brake Piston Subassembly is removed. Remove the Inner (Rotor) (1K), Outer (Stator) (1J) from Spindle (1A).

5. Remove O-Ring (1P) and Backup Ring (1Q) from piston (1L). Discard o-rings and backup rings.

6. Remove O-Ring (1M) and Backup Ring (1N) from Spindle (1A). Discard o-rings and backup rings.

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NOTE: As an alternative to Step 4, the spindle port may be pressurized with air to push the brake piston out of the spindle.

7. Remove M6 Socket Head Cap Screws (26) and lift the Thrust Plate (1S) from the Brake Piston (1L).

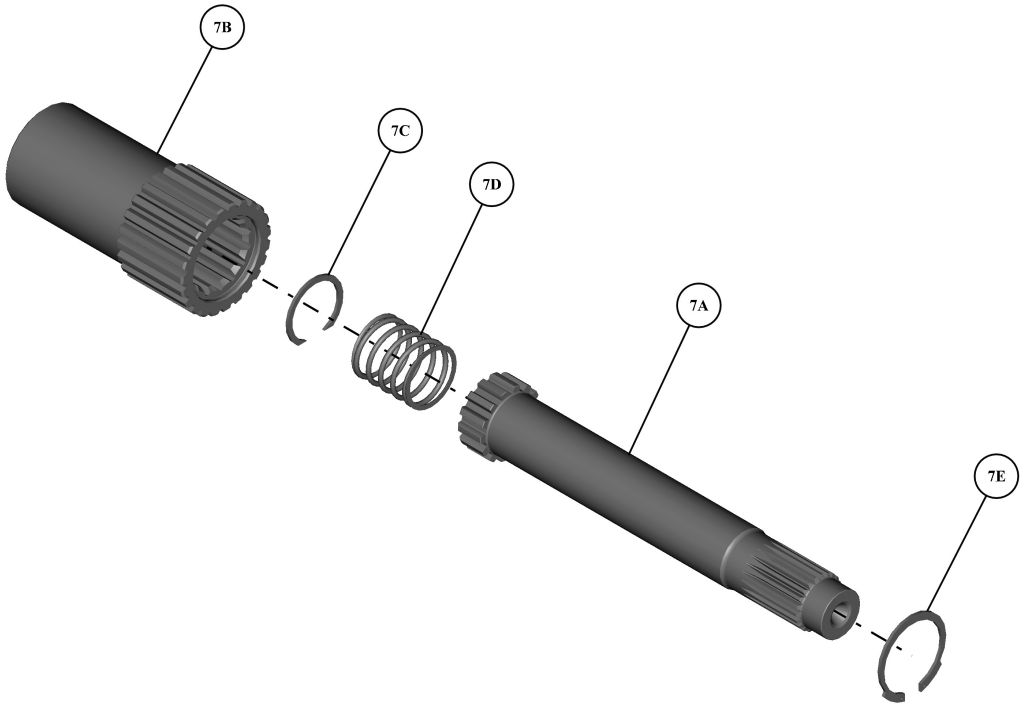
   NOTE: Record the number of Springs (1R) and mark their locations before removing them from Brake Piston (1L).

8. Remove Springs (1R) from the Brake Piston (1L).

9. Remove the Thrust Washer (20) from Spindle (1A).

This concludes the Input Brake Disassembly.

Input Shaft Disassembly

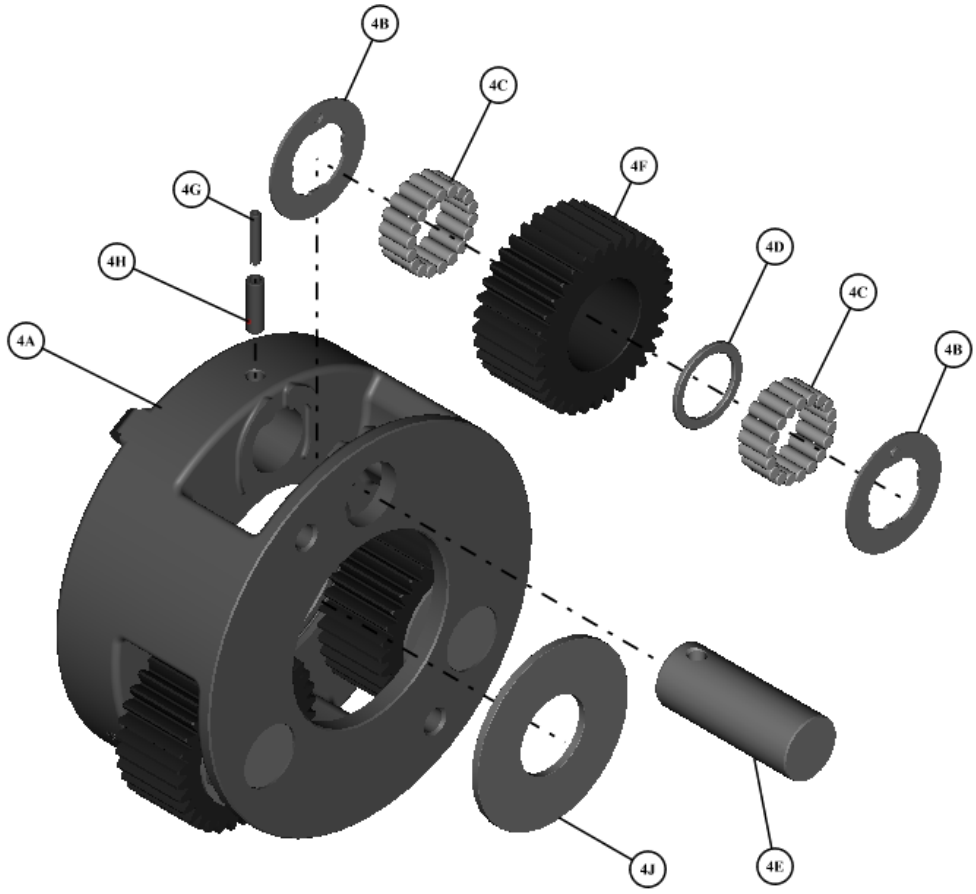


CAUTION: Safety glasses must be worn during these next steps.

1. Remove Retaining Ring (7E) from retaining ring groove of Coupling (7B).
2. Remove the Input Shaft (7A) from Coupling (7B).
3. Remove the Spring (7D) from bore of Coupling (7B).
4. Remove the Retaining Ring (7C) from bore of Coupling (7B).

This concludes the Input Shaft Disassembly.

Output Carrier Disassembly



1. Drive the Planet Shaft (4E) out of the carrier pin holes, forcing the Spring Pin (4H) / Roll Pin (4G) to sheer off.

2. Hold on to the Planet Gear (4F) and push the Planet Shaft (4E) out of the Carrier (4A). The Thrust Washers (4B) will slide off the Shaft as it is removed.

3. Using a hammer and punch, drive the Roll Pin (4G) out of the Planet Shaft (4E).

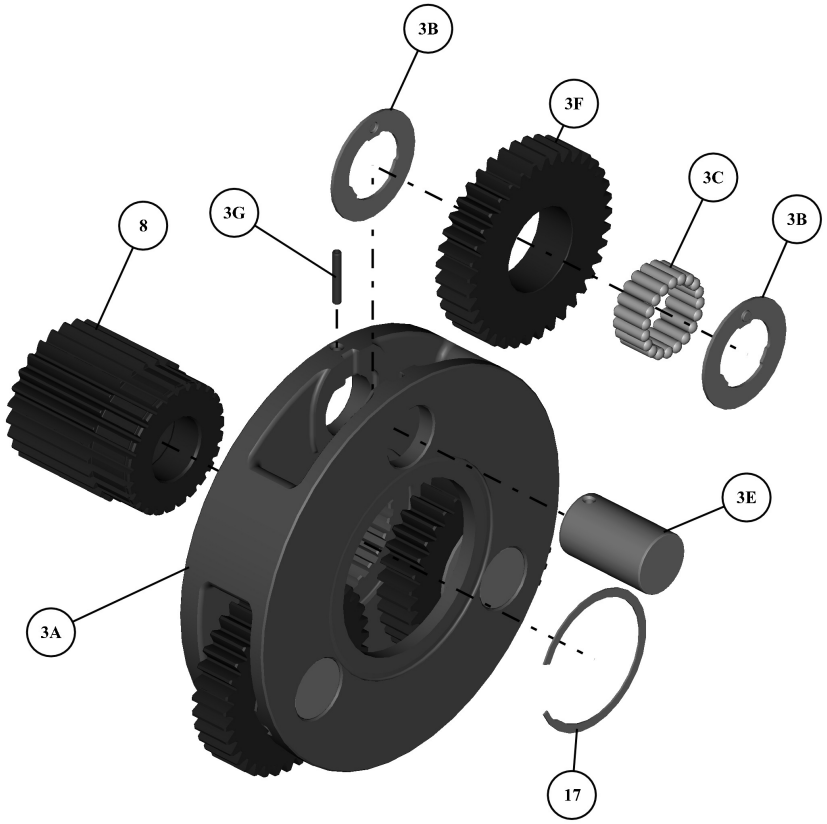
4. Remove the Needle Rollers (4C) and the Spacer (4D) from inside of the Planet Gear (4F).

5. Repeat steps 1-4 for the remaining three Planet Gears (4F).

6. Remove the Thrust Washer (4J) from the counter bore of the carrier housing (4A).

This concludes the Output Carrier Disassembly.

Input Carrier Disassembly



1. Drive the Planet Shaft (3E) out of the carrier pin holes; forcing the Roll Pin (3G) to sheer off.
2. Hold on to the Planet Gear (3F) and push the Planet Shaft (3E) out of the Carrier (3A). The Thrust Washers (3B) will slide off the shaft as it is removed.
3. Using a hammer and punch, drive the Roll Pin (3G) out of the Planet Shaft (3E).
4. Remove the Needle Bearings (3C) from the inside of the Planet Gear (3F).
5. Repeat steps 1-4 for the remaining two Planet Gears (3F).

CAUTION: Safety glasses must be worn during these next steps.

6. Remove the Retaining Ring (17) from groove of Output Sun Gear (8).
7. Remove the Output Sun Gear (8) out of Carrier (3A).

This concludes the Input Carrier Disassembly.

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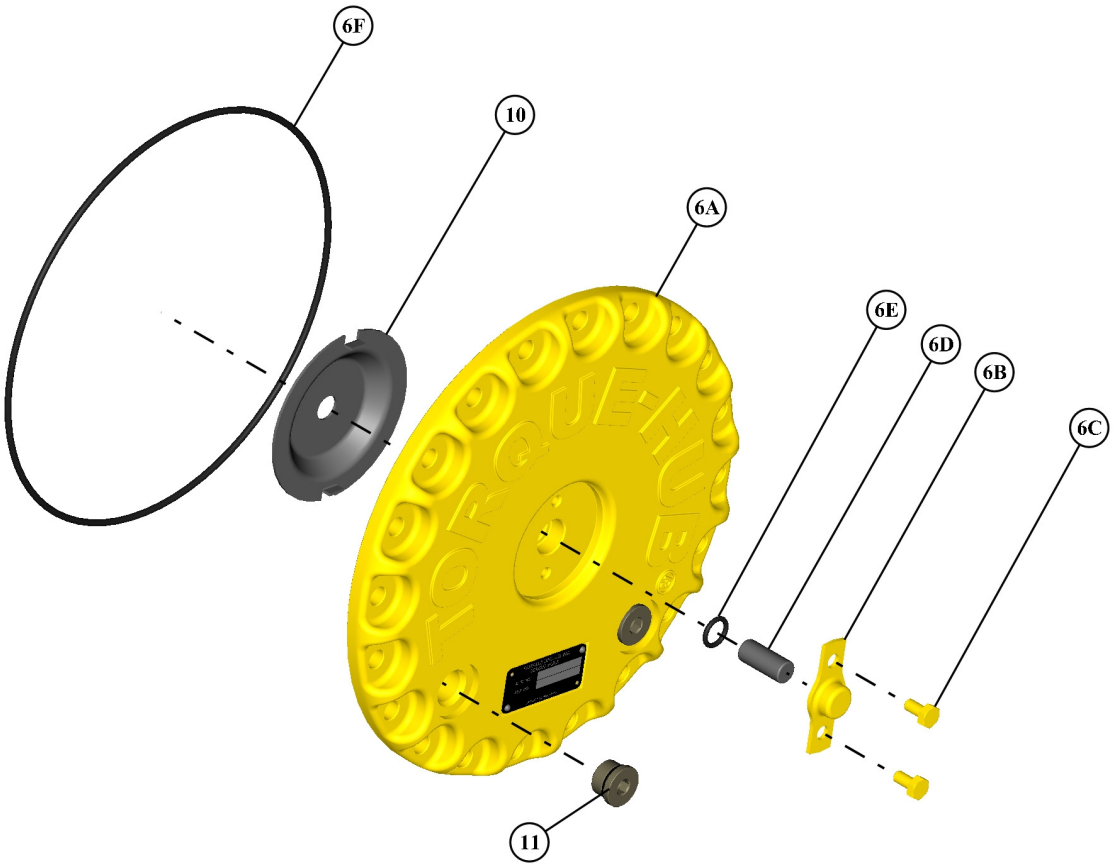
Cover Subassembly



1. Install two Pipe Plugs (11) into the Cover (6A).

2. Grease the O-ring (6F) and place it in the groove in the Cover (6A).

3. Grease the Thrust Washer (10) and place on the inner hub of the Cover (6A), keeping the two tangs aligned with the cast slots in the Cover (6A).

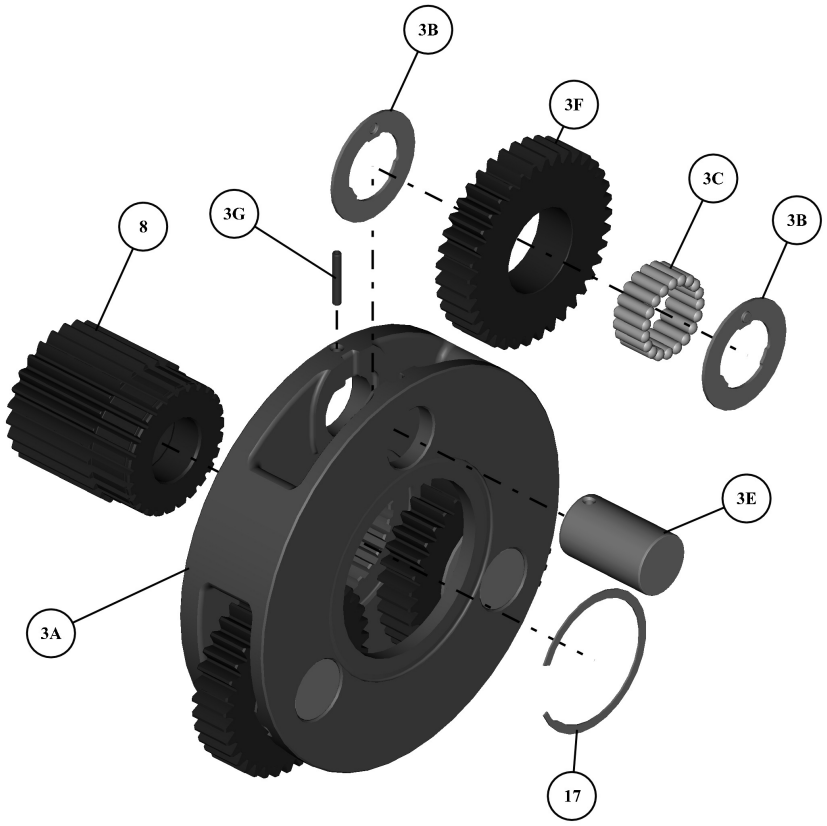
4. Grease the O-ring (6E) and install into the internal groove in the Cover (6A).

5. Attach the Disengage Cap (6B) to the Cover (6A) using Hex Bolts (6C). Tighten the Bolts to a torque of 65 in-lbs.

6. Turn the Cover (6A) over and push Disengage Rod (6D) until Disengage Rod (6D) bottoms out on the Disengage Cap (6B).

This concludes the Cover Subassembly.

Input Carrier Subassembly



1. Apply a liberal coat of grease to the bore of the Planet Gear (3F). This will enable the Needle Rollers (3C) to be held in place during assembly.

2. Install Needle Rollers (3C) into the bore of each of the three Planet Gears (3F).

   NOTE: The last roller installed must be installed end wise. That is, the end of the last roller must be placed in between the ends of the two rollers that form the space, and then slide parallel to the other rollers into place.

3. Place the Carrier (3A) into the tool fixture so that one of the roll pin holes is straight up.

   CAUTION: Safety glasses must be worn during these next steps.

   Install Output Sun Gear (8) into the Carrier (3A) using Retaining Ring (17).

4. Start Planet Shaft (3E), with end opposite roll pin hole first, through the planet shaft hole in Carrier (3A), making sure that the roll pin hole in the planet shaft is straight up.

5. Using ample grease to hold them in position, locate Thrust Washer (3B) onto each side of interior carrier wall with buttons located into slots in Carrier pads.

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6. Place the Planet Gear (3F) into position and push the Planet Shaft (3E) through the planet gear without going all the way through Carrier.

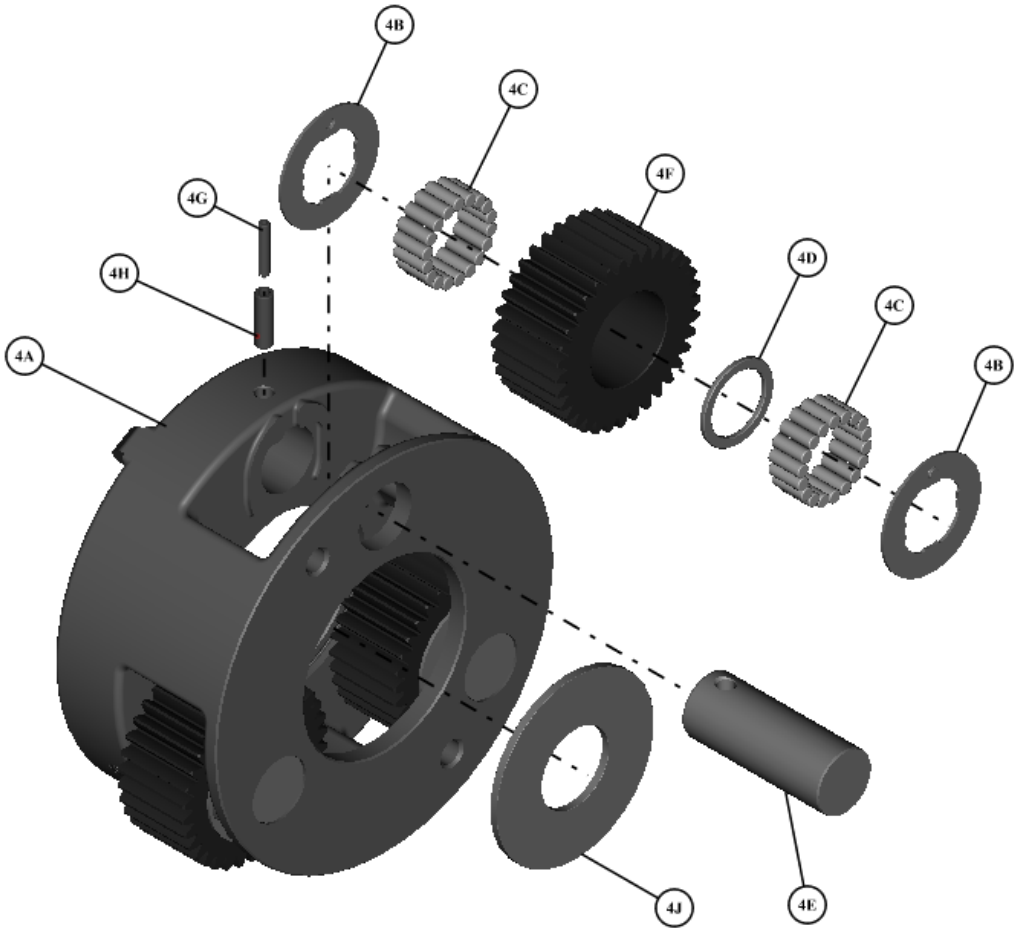
7. Finish pushing the Planet Shaft (3E) into the Carrier (3F) until roll pin holes of Planet Shaft and Carrier are aligned. If necessary, align roll pin holes using a 1/8” diameter punch.

8. Drive the Spring or Roll Pin (3G) with small end into the roll pin hole in carrier and into the Planet Shaft (3E) until the larger end of the tapered roll pin is flush with the outside diameter of Carrier (3F).

9. Repeat steps 5 to 8 for the remaining two Planet Gears (3F).

This concludes the Input Carrier Subassembly.

Output Carrier Subassembly



1. Install Thrust Washer (4J) into counter bore of Carrier Housing (4A).

2. Apply a liberal coat of grease to the bore of the Planet Gear (4F). This will enable the Needle Rollers (4C) to be held in place during assembly.

3. Install one half of the inside of the Planet Gear (4F) with 21 Needle Rollers (4C).

   NOTE: The last roller installed must be installed end wise. That is, the end of the last roller must be placed in between the ends of the two rollers that form the space, and then slide parallel to the other rollers into place.

4. Place one Spacer (4D) on top of the Needle Rollers (4C) inside the Planet Gear (4F).

5. Install the other half of the Planet Gear (4F) with 21 Needle Rollers (4C).

6. Place the Carrier to the tool fixture so that one of the roll pin holes is straight up.

7. Start Planet Shaft (4E), with end opposite roll pin hole first, through the planet shaft hole in carrier (4A), making sure that the roll pin hole in the planet shaft is straight up.

Continued on Next Page

8. Using ample grease to hold them in position, locate Thrust Washer (4B) onto each side of interior carrier wall with buttons located into slots in Carrier pads.

9. Place the Planet Gear (4F) into position and push the Planet Shaft (4E) through the Planet Gear without going all the way through the carrier.

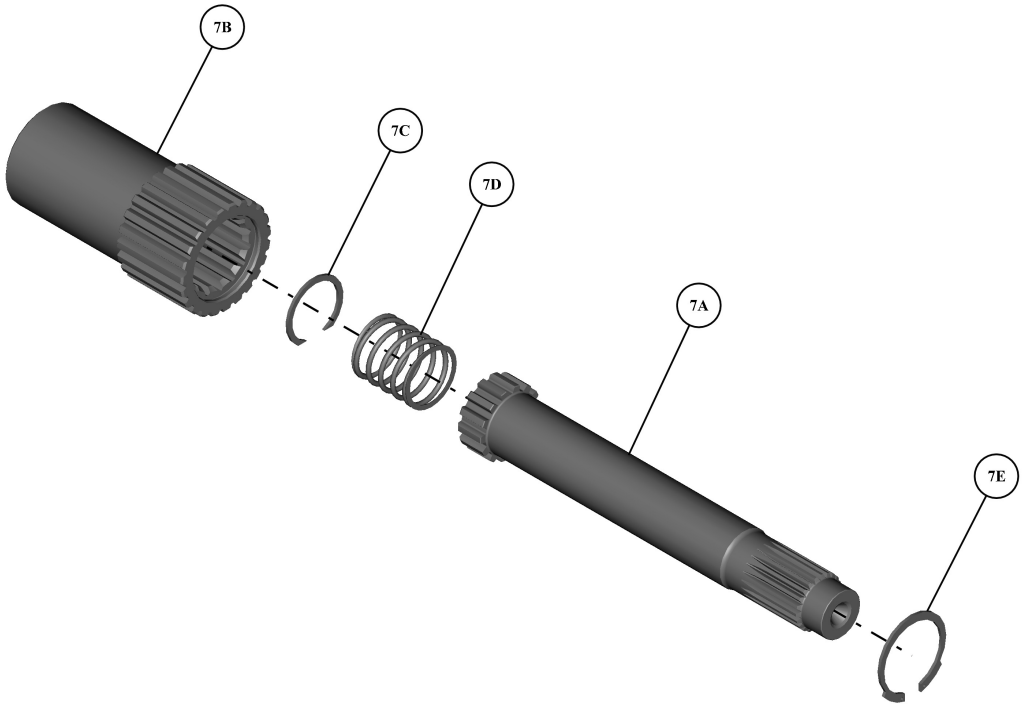
10. Finish pushing the Planet Shaft (4E) into the Carrier until roll pin holes of planet shaft and carrier are aligned. If necessary, align roll pin holes using a 1/8” diameter punch.

11. Drive the Spring Pin (4H) / Roll Pin (4G) into the roll pin hole in carrier and into the Planet Shaft (4E) until the larger end of the Spring Pin 4H / Roll Pin (4G) is flush with outside diameter of the Carrier (4A).

12. Repeat steps 2 to 12 for the remaining three Planet Gears (4F).

This concludes the Output Carrier Subassembly.

Input Shaft Subassembly

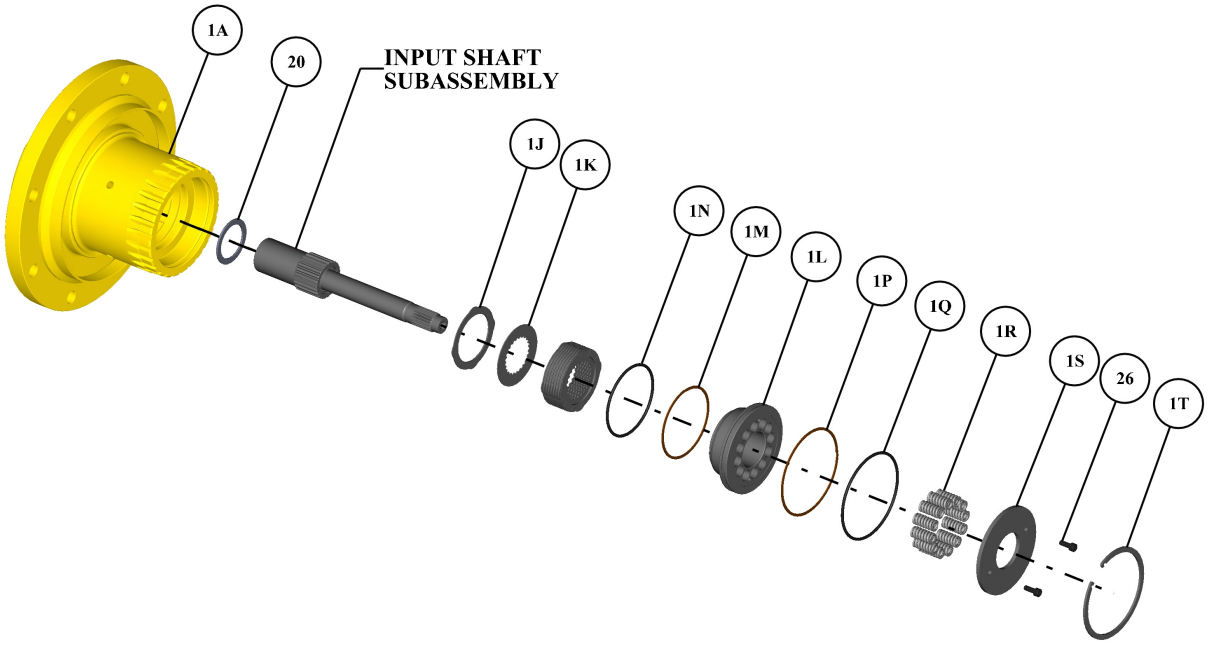


CAUTION: Safety glasses must be worn during this next step.

1. Install the Retaining Ring (7C) into Coupling (7B).
2. Install the Spring (7D) into the Input Coupling (7B) bore.
3. Slide the Retaining Ring (7E) onto Input Shaft (7A).
4. Install the Input Shaft (7A) into the Input Coupling (7B). Make sure that the splines are engaged.
5. Install the Retaining Ring (7E) into the retaining ring groove of Input Coupling (7B) using retaining ring installation tool.

This concludes the Input Shaft Subassembly.

Input Brake Subassembly



1. Set the Spindle (1A) on the bench with the flange side down.

2. Grease the Thrust Washer (20) and place in the counter bore of the Spindle (1A).

3. Insert the Input Shaft Subassembly into the Spindle (1A) with smaller diameter of coupling down until seated on the Thrust Washer (20).

4. Place the Brake Rotor (1K) into the Spindle (1A) on the spline of the Coupling (7B).

5. Place the Brake Stator (1J) into the scallop cuts of the Spindle (1A) on top of the Brake Rotor (1K).

   NOTE: There should always be a stator on the top and bottom of the stack.

6. Repeat steps 4 and 5 until all the Stators (1J) and Rotors (1K) are installed in the Spindle.

7. Apply a light coat of grease to Backup Ring (1M) and install ring into groove of Spindle (1A).

8. Apply a light coat of grease to O-ring (1N) and install ring into groove of Spindle (1A).

Continued on Next Page

9. Apply a light coat of grease to O-ring (1P) and install ring into groove of Brake Piston (1L).

10. Apply a light coat of grease to the Backup Ring (1Q) and install ring into groove of the Brake Piston (1L).

NOTE: The Backup Ring (1Q) should be closest to the large end face of the Piston (1L).

11. Carefully insert the Piston (1L) into the Spindle (1A) until it contacts the Brake Stator (1J).

12. Insert the correct amount of Springs (1R) into the Piston (1L). (Refer Brake Chart in page 6).

13. Place the Pressure Plate (1S) on top of the springs.

14. Install two M6 Socket Head Cap Screws (26) through the Pressure Plate (1S) into the Piston (1L).

15. Tighten M6 Socket Head Cap Screws (26) incrementally to evenly compress the Springs (1R).

CAUTION: Safety glasses must be worn during this next step.

16. Install the Retaining Ring (1T) into the groove of Spindle (1A).

NOTE: Use caution when installing retaining ring (1T) into spindle (1A). It may cause injury if it slips out of retaining ring pliers

NOTE: Make sure the retaining ring is completely seated.

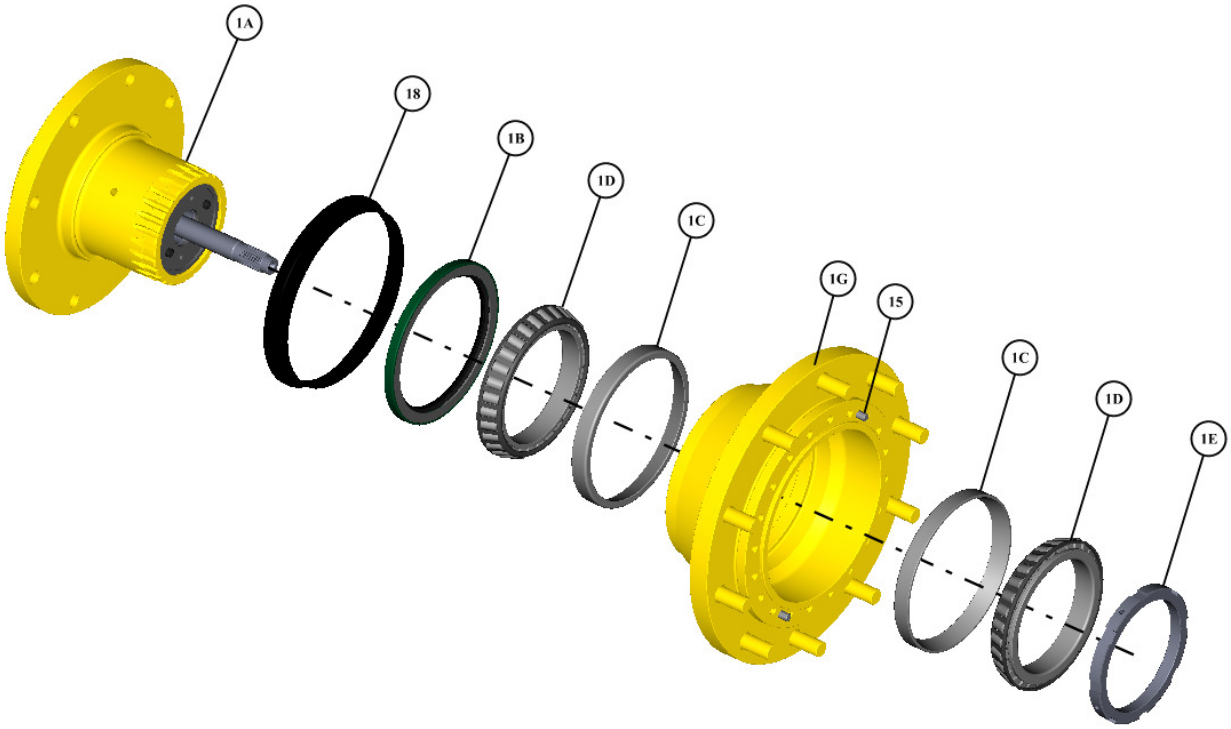
17. Remove two M6 Socket Head Cap Screws (26) from the Brake Piston (1L) and discard.

NOTE: Use caution when removing Bolts (26) as they are subject to spring pressure. Make sure the retaining ring (1T) is secure before removing Bolts (26).

18. Pressurize the brake cavity and check for leaks.

This concludes the Input Brake Assembly.

Housing - Spindle Subassembly



1. Using alcohol and a clean rag, wipe off bearing locations on the Housing (1G) and the Spindle (1A).

2. Press one Bearing Cup (1C) into bearing counter bore of spindle end of housing until seated against shoulder in housing. Use Tool T158422.

3. Turn Housing (1G) and press one Bearing Cup (1C) using Tool T158422 into bearing counterbore of cover end of Housing (1G) making sure that it is fully seated against shoulder in the housing.

   NOTE: Generally seals should not be reused.

4. Place one Bearing Cone (1D) into the Housing (1G) and, if necessary spray with a light coat of oil.

5. Spray the housing seal bore with alcohol, then wipe with a clean rag. Ensure there is no debris left in the bore.

6. Spray the O.D. of the Lip Seal (1B) with alcohol and wipe with a clean rag. Place and visually align the Lip Seal (1B) into the housing (1G) seal bore. Press the seal into the housing using seal press Tool T160970. When the seal press tool makes contact with the Housing (1G) the seal is fully seated.

Continued on Next Page

7. Spray the Spindle (1A) seal diameter with alcohol and wipe with a clean rag. Apply a coat of grease to the Spindle (1A) seal diameter with brush.

8. If used, install Boot Seal (18) onto Housing (1G).

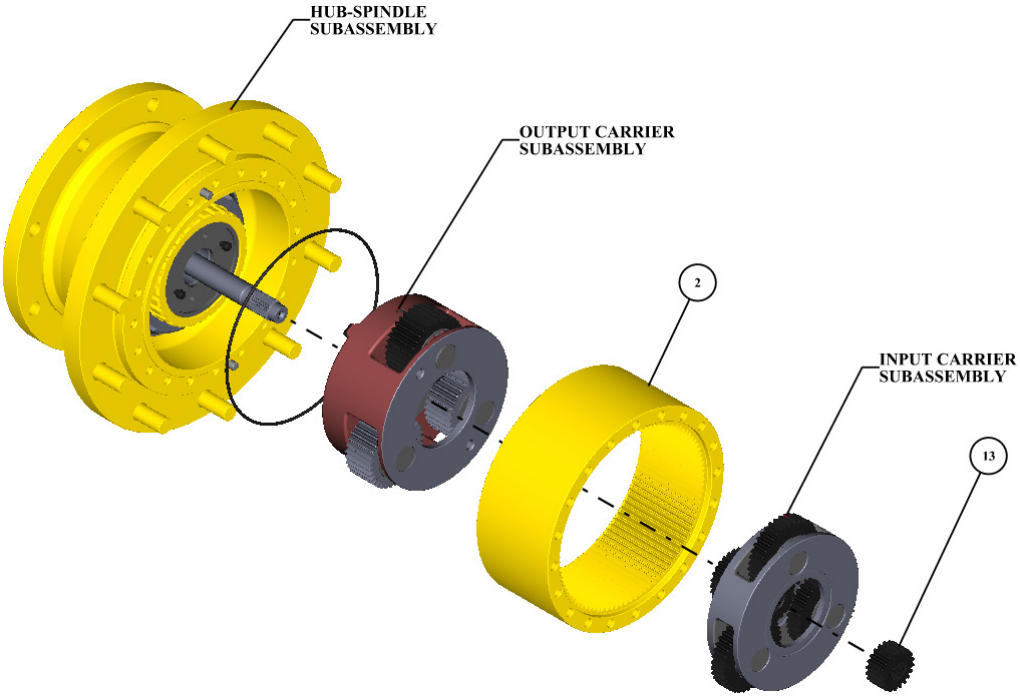
9. Install the Housing (1G) onto the spindle with seal side down.

10. Place other Bearing Cone (1D) onto Spindle (1A) until it is seated in Bearing Cup (1D) in Housing (1G) and spray with a light coat of oil. If necessary, use Tool T189310 to press Bearing Cone (1D) onto Spindle (1A).

11. Install Bearing Nut (1E) onto Spindle (1A) and tighten using locknut wrench T206569. Torque Bearing Nut (1E) to 150 ft-lbs, rotate Housing (1G) in both directions, and then torque Bearing Nut to 150 ft-lbs. Rotate Housing (1G) in both directions again and torque bearing nut to 150 ft-lbs. Repeat this until Bearing Nut (1E) does not move when 150 ft-lbs of torque is applied.

This concludes the Housing-Spindle Subassembly.

Main Assembly

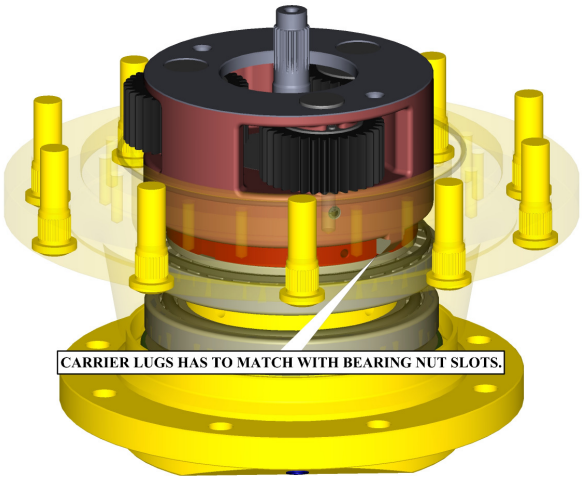


NOTE: Spray component parts with a liberal amount of oil as they are being assembled.

1. Place Hub-Spindle Subassembly, spindle flange end down.

2. Install O-Ring (6F) onto groove of Housing (1G).

3. Install the Output Carrier Subassembly onto the spindle by aligning spindle splines with carrier splines. Insure carrier bolts/bearing nut slots and spindle splines are all engaged.



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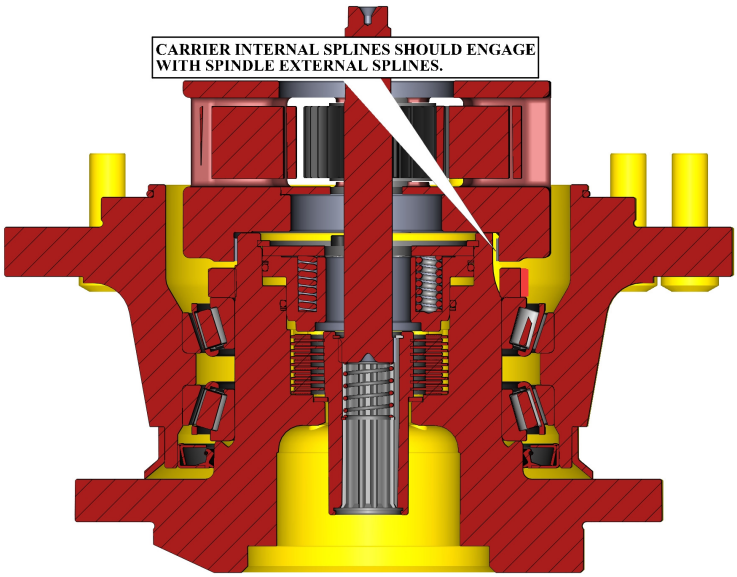


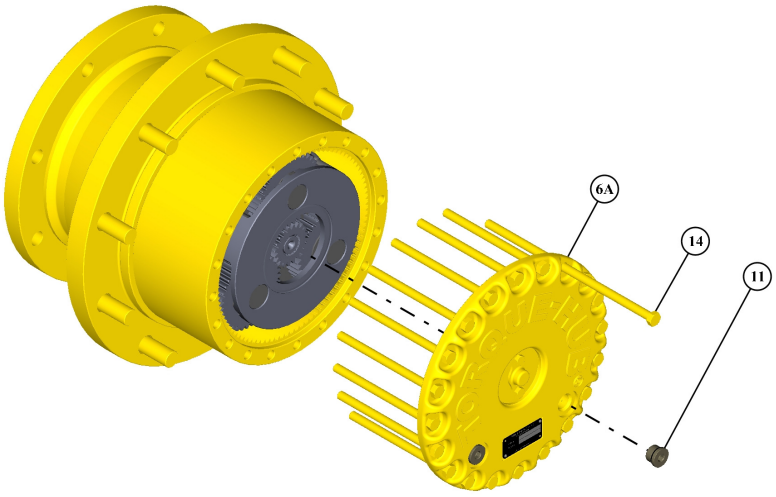
NOTE: It may take several attempts to install carrier correctly on nut slots and spindle splines.

4. Install the Ring Gear (2) on to the Hub-Spindle Subassembly by aligning dowel pins to dowel pin hole.

5. Install Input Carrier Subassembly into Ring Gear (2), make sure that the splines of the Sun Gear (8) aligned with the splines of the Input Carrier Subassembly.

6. Install Input Sun Gear (13) onto input Shaft.

7. Align pipe plugs (11) to proper location per print and install Cover Subassembly (6A) to Housing (1G). Using loctite 243, install Hex Bolts (14). Torque bolts to 35-45 ft-lbs.



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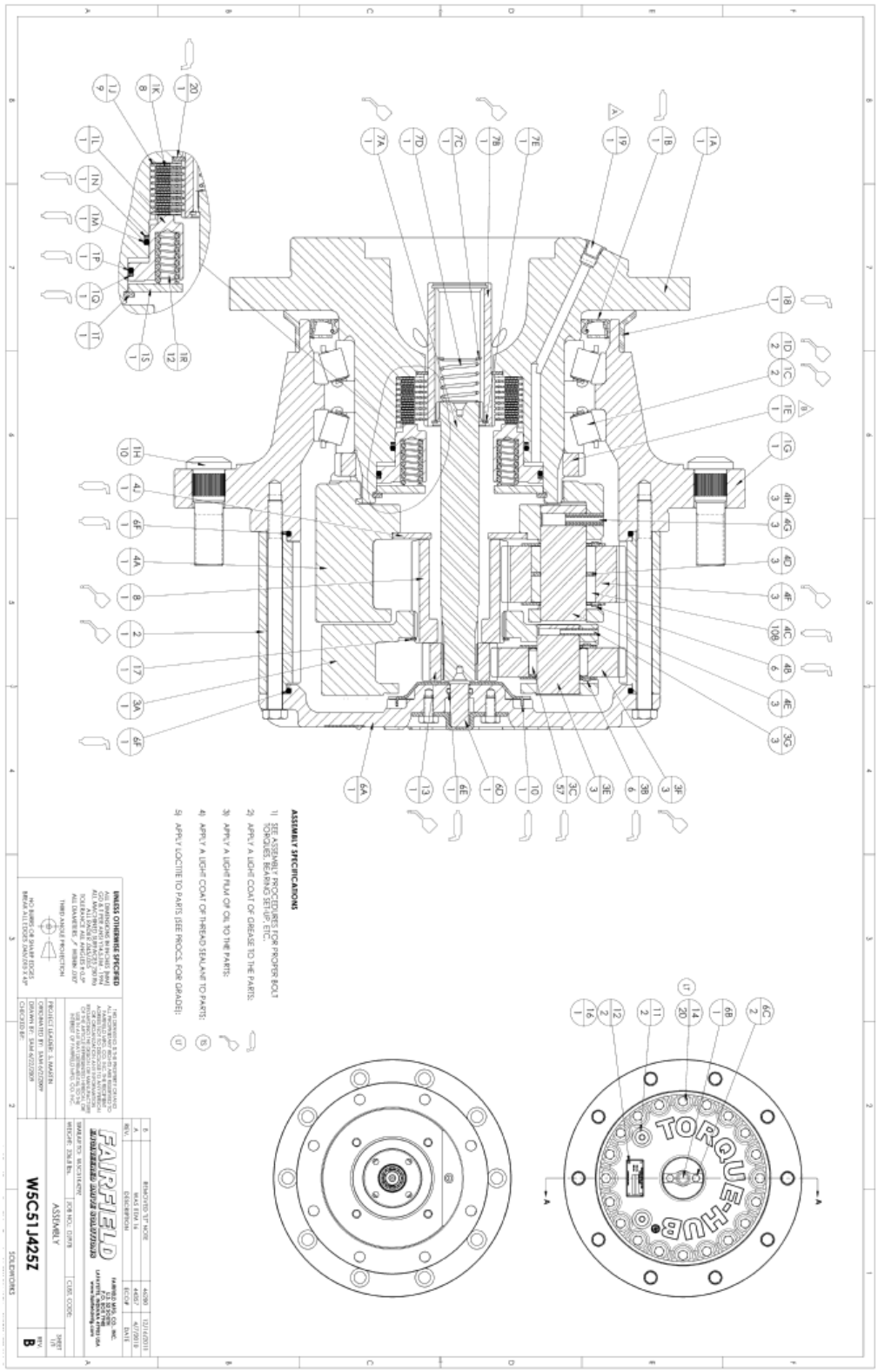
8. The Unit should undergo brake test as per instructions on pages 5, 6 and 7.

9. After done with brake test the unit should now be leak and roll checked as per instructions on pages 8, 9 and 10. The motor can be reinstalled into the gearbox for the leak check to seal it off, and the unit pressurized through a pipe plug hole on the cover.

This concludes the Main assembly.

Planetary Final Drive Service Manual
Assembly Drawing


ASSEMBLY SPECIFICATIONS
1) SEE ASSEMBLY PROCEDURES FOR PROPER BOLT TORQUES, BEARING SET-UP, ETC.
2) APPLY A LIGHT COAT OF GREASE TO THE PARTS:
3) APPLY A LIGHT FILM OF OIL TO THE PARTS:
4) APPLY A LIGHT COAT OF THREAD SEALANT TO PARTS:
5) APPLY LOCTITE TO PARTS (SEE PROCS. FOR GRADE):
UNLESS OTHERWISE SPECIFIED
TORQUE-HUB
FAIRFIELD
ASSEMBLY
W5C51J425Z
B

Planetary Final Drive Repair Instructions
Parts List

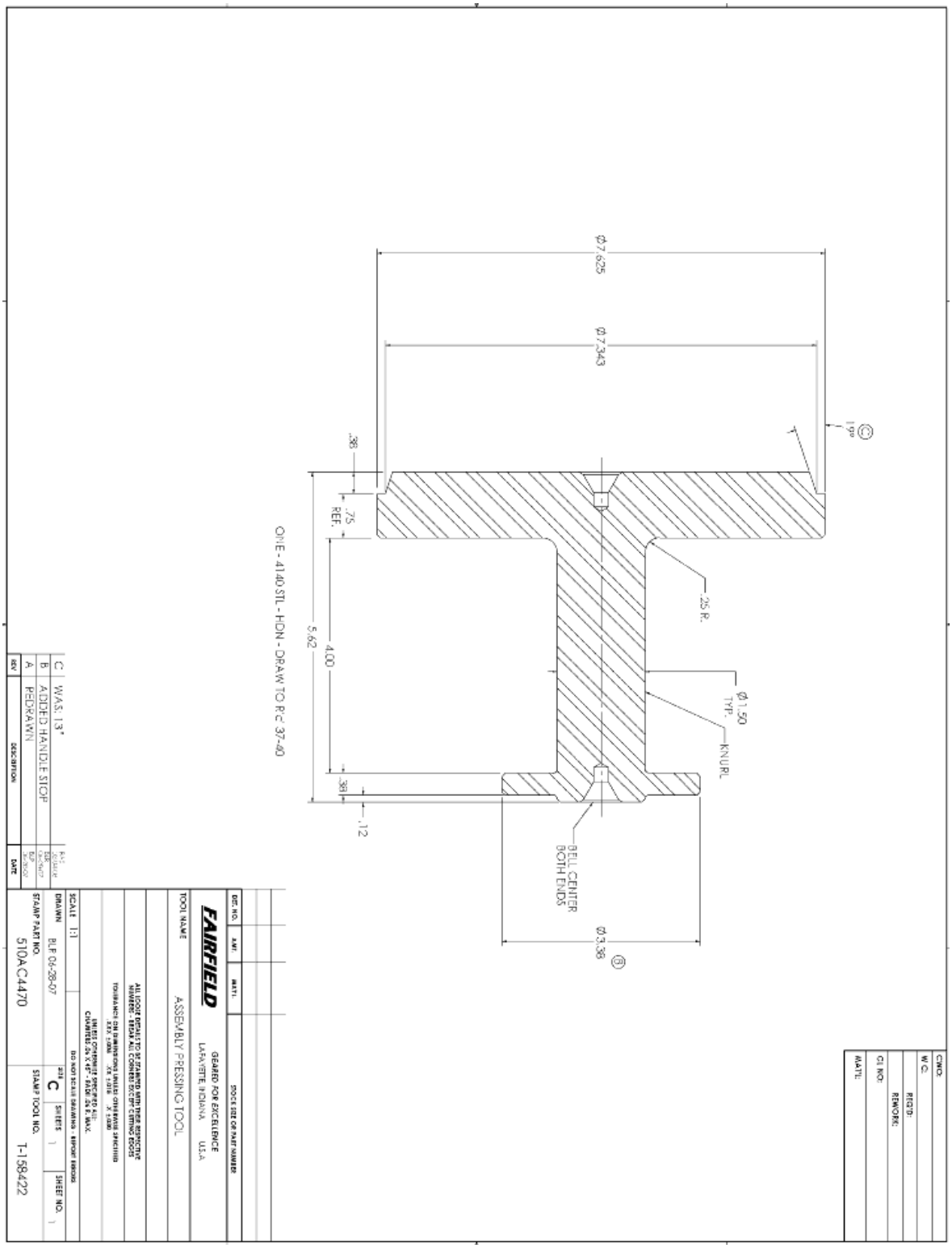
Number	Qty	Description
3A	1	INPUT CARRIER
8	1	OUTPUT SUN GEAR
3E	3	PLANET SHAFT
3F	3	PLANET GEAR
3C	57	NEEDLE BEARING
17	1	RETAINING RING
3G	3	ROLL PIN
3B	6	THRUST WASHER
4A	1	OUTPUT CARRIER
4E	3	PLANET SHAFT
4F	3	PLANET GEAR
4D	3	SPACER
4C	108	NEEDLE BEARING
4G	3	ROLL PIN
4B	6	THRUST WASHER
4J	1	THRUST WASHER
7B	1	COUPLING
1B	1	LIP SEAL
18	1	BOOT SEAL
6B	1	DISENGAGE CAP
7A	1	INPUT SHAFT
13	1	SUN GEAR
1A	1	SPINDLE
2	1	RING GEAR
6A	1	COVER PLATE
1G	1	HOUSING
1C1D	1	BEARING CUP, BEARING CONE
1R	*	BRAKE SPRING
7D	1	SPRING
1K	8	BRAKE ROTOR
1J	9	BRAKE STATOR
1L	1	BRAKE PISTON
7C	1	RETAINING RING
1T	1	RETAINING RING
7E	1	RETAINING RING
6C	2	HEX BOLT
14	20	HEX BOLT
26	2	METRIC BOLT

Number	Qty	Description
6E	1	O-RING
6F	2	O-RING
1P	1	O-RING
1M	1	O-RING
1Q	1	BACKUP RING
1N	1	BACKUP RING
11	2	PIPE PLUG
1S	1	BRAKE THRUST
20	1	THRUST WASHER
10	1	THRUST SPACER
1H	10	STUDS
1E	1	BEARING NUT
15	2	DOWEL PIN
19	1	PLASTIC PLUG

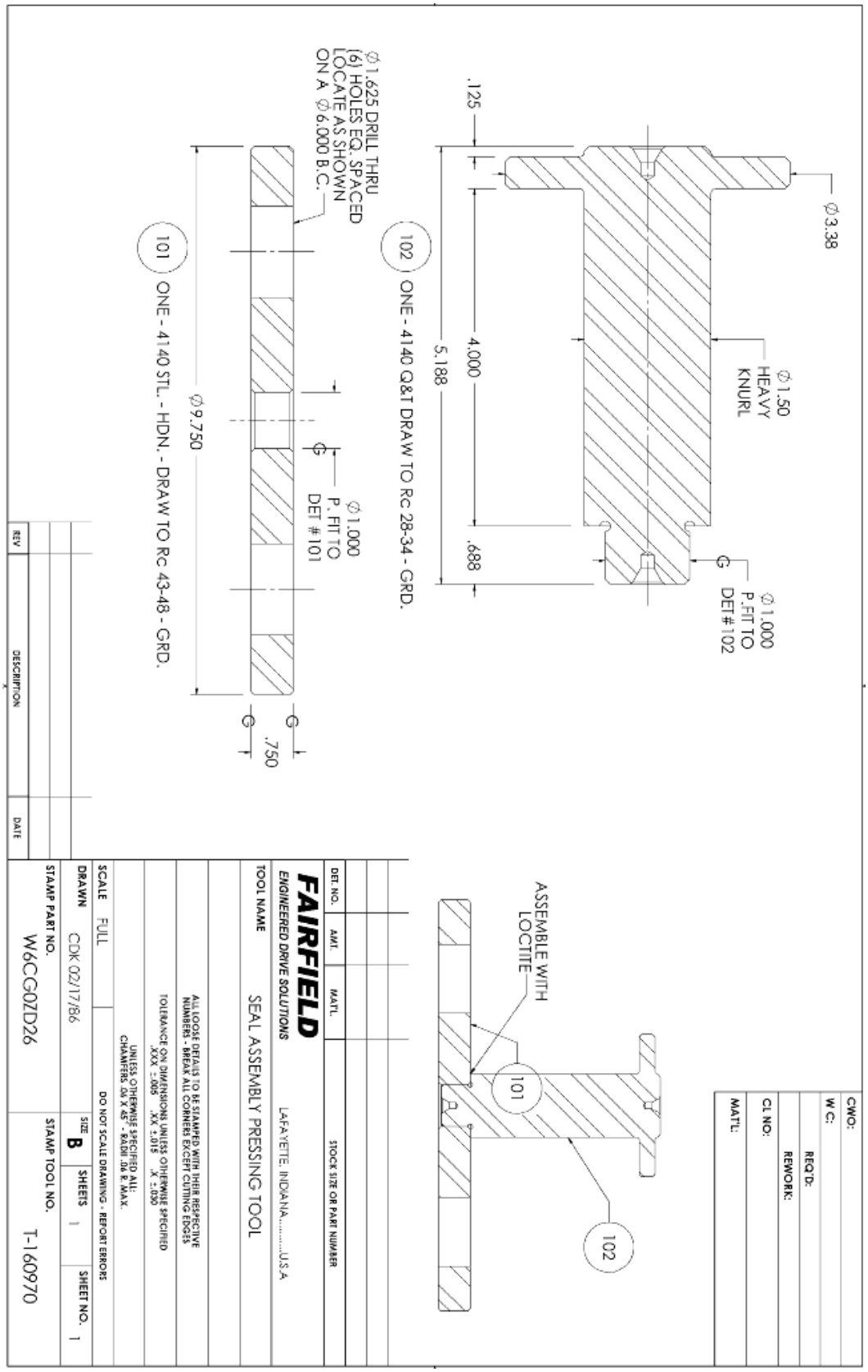
NOTE: * For Spring (1R) quantity, refer to the Brake Chart under Brake Test on page 6.

Planetary Final Drive Repair Instructions
Assembly Tools

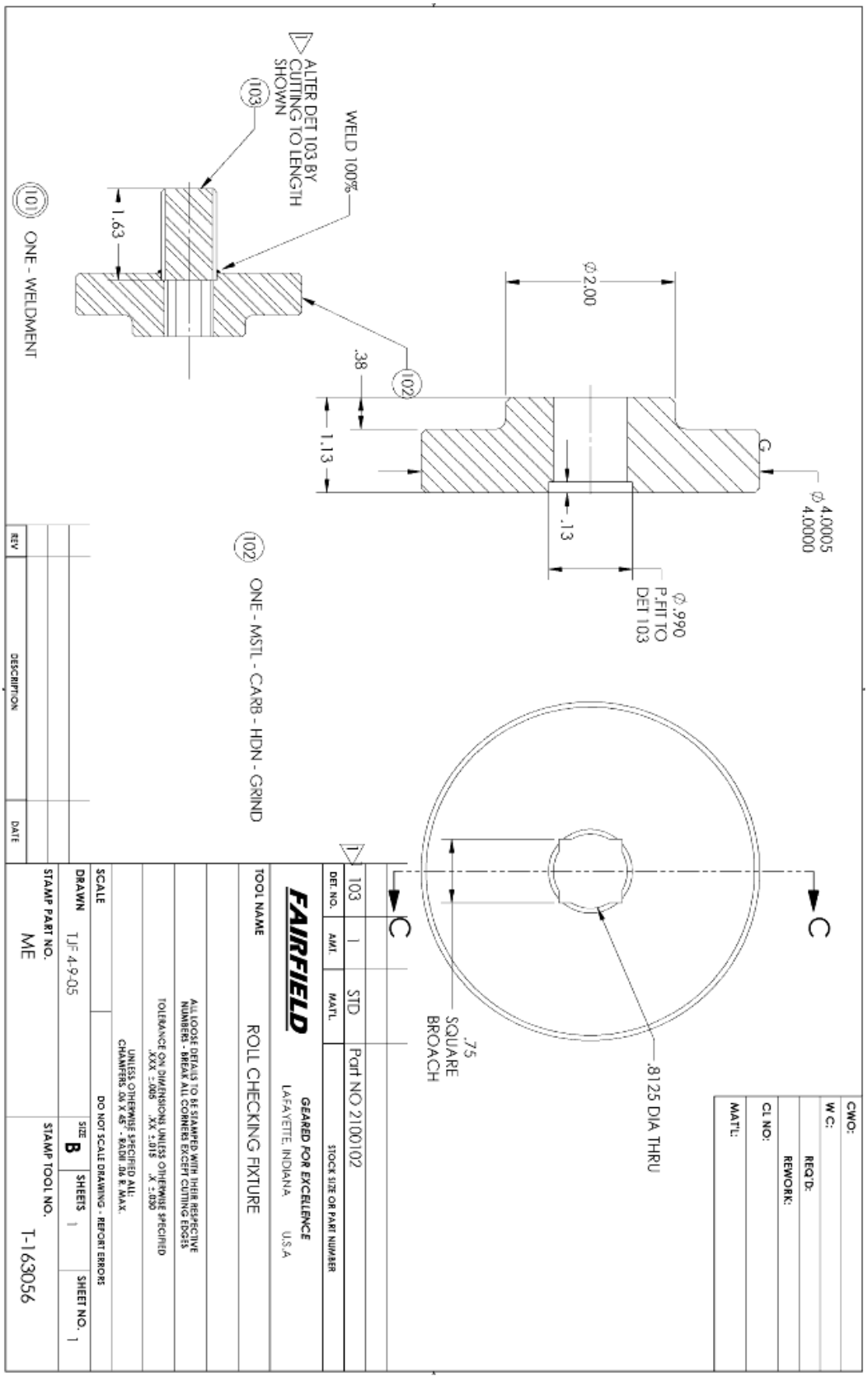
T158422 – BEARING CUP PRESS TOOL



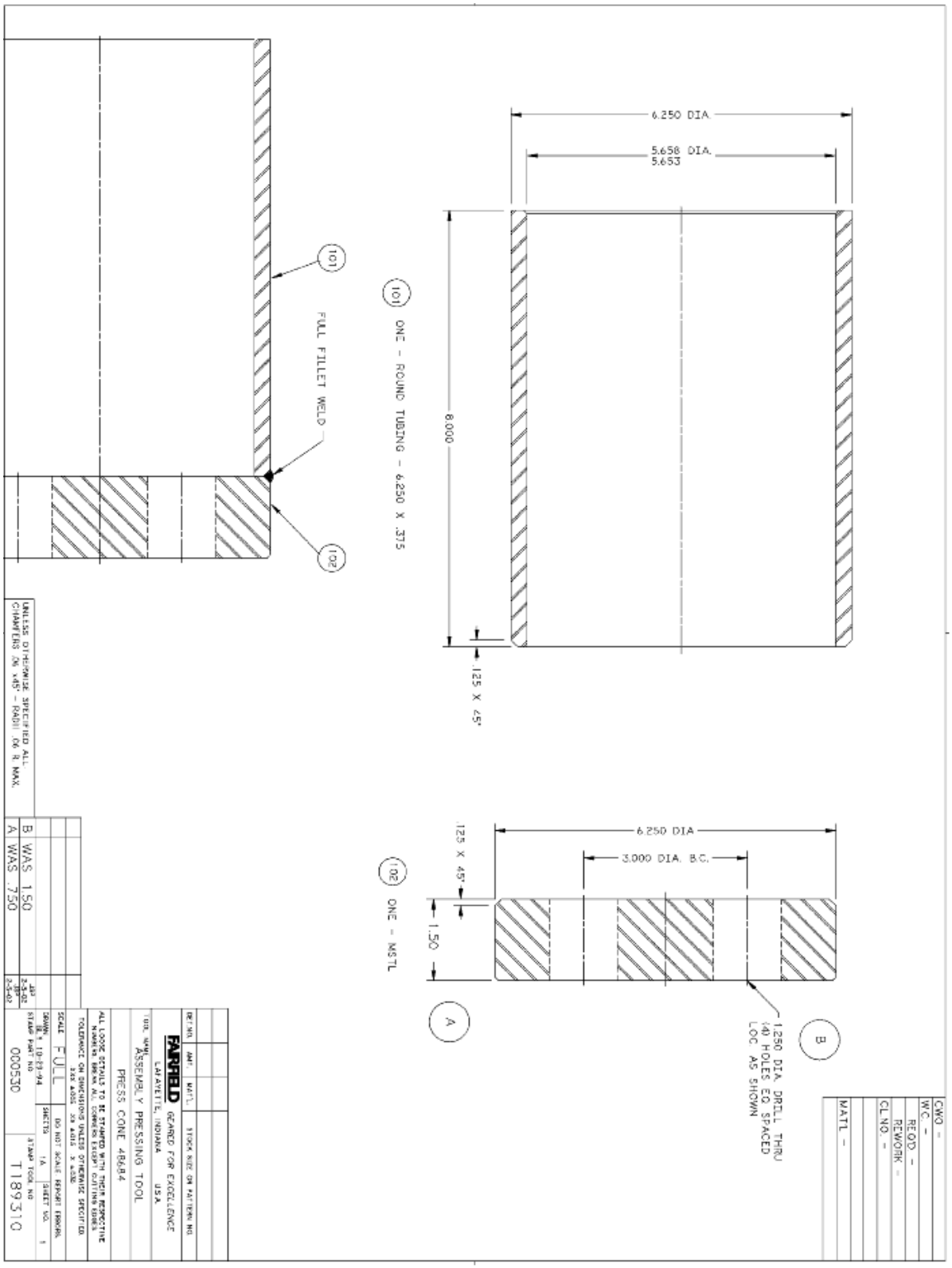
T160970 – SEAL PRESS TOOL



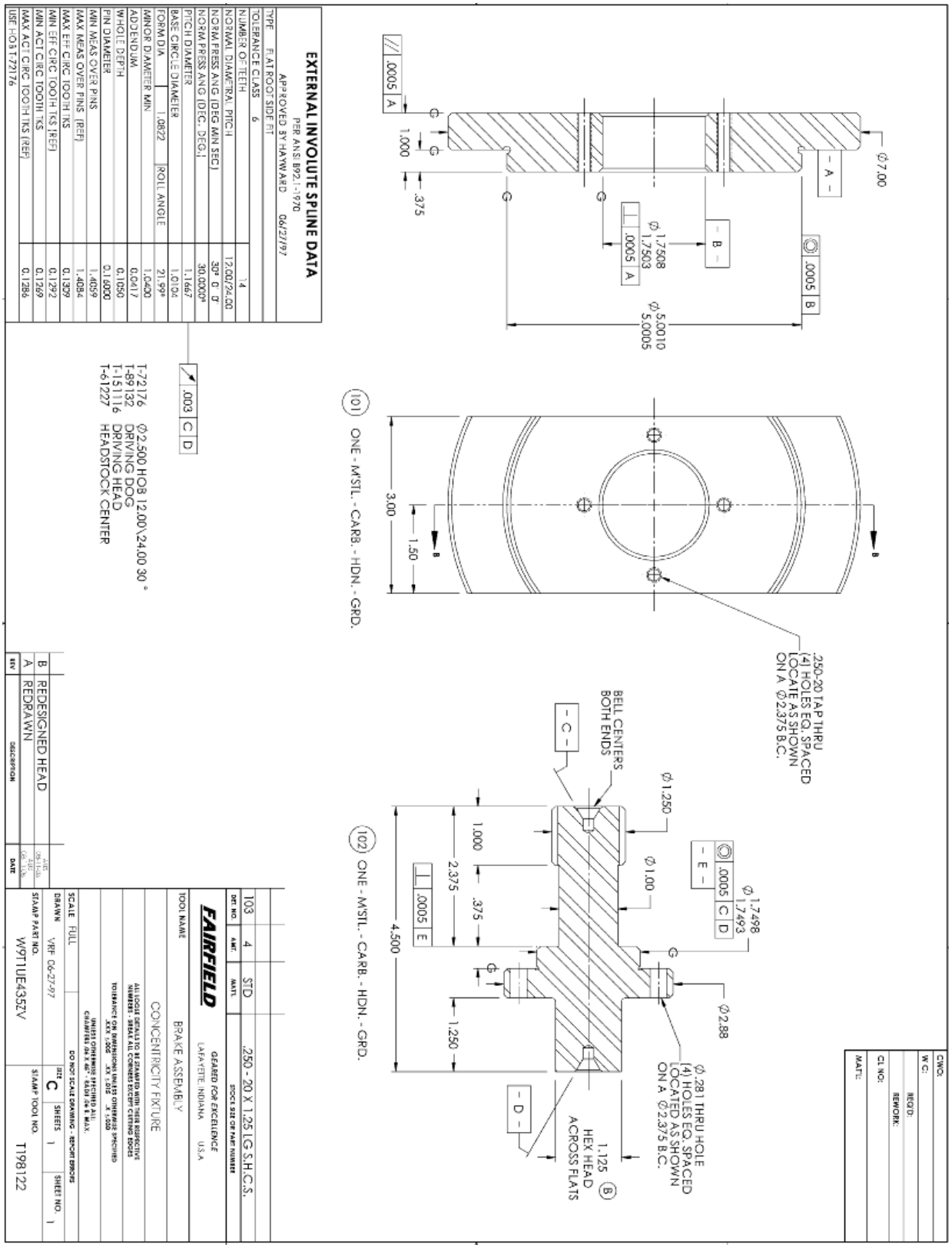
T163056 – ROLL CHECK TOOL



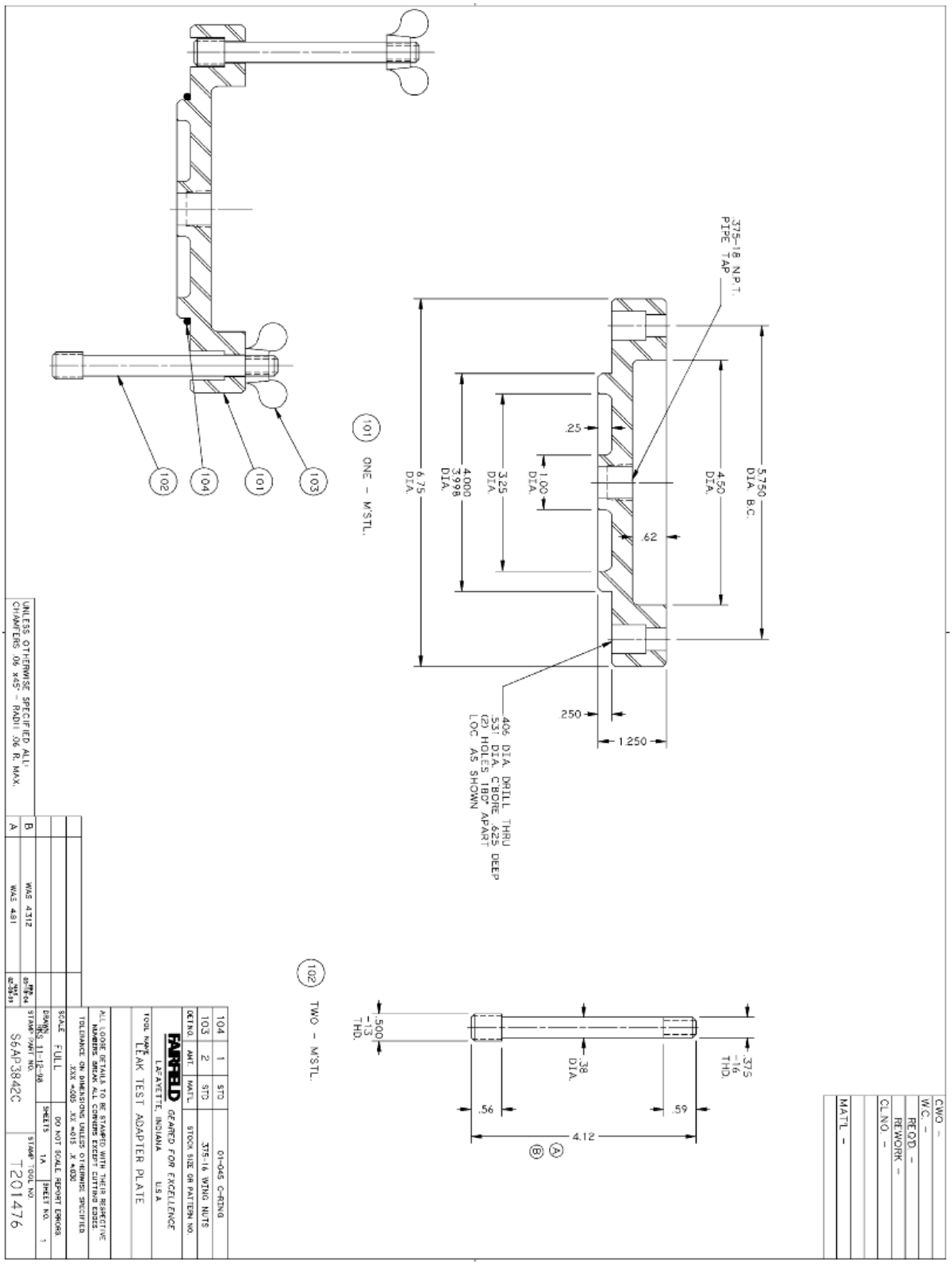
T189310 – BEARING CONE PRESS TOOL



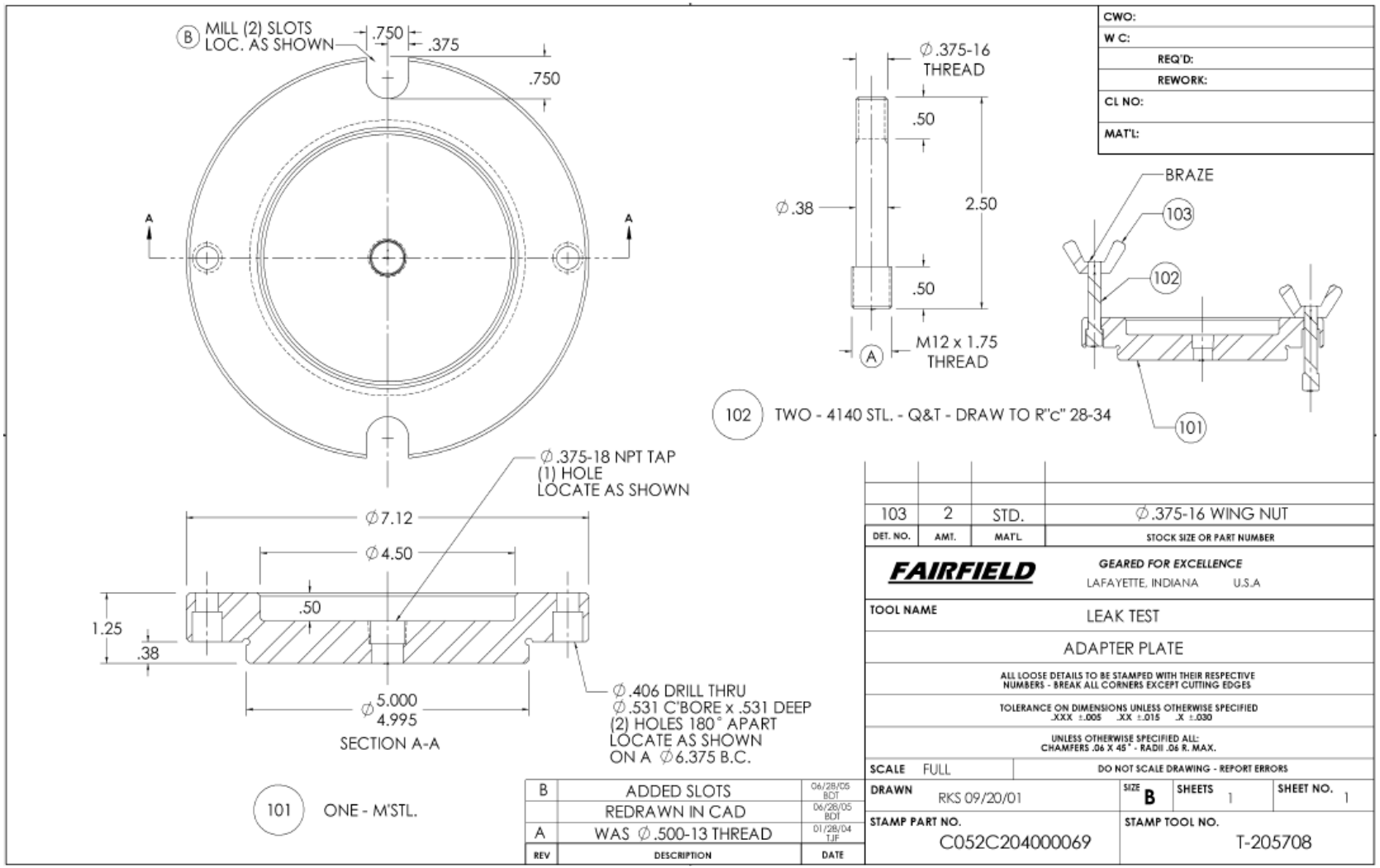
T198122 – ROLL CHECK TOOL



T201476 – LEAK CHECK TOOL



T205708 – LEAK CHECK TOOL



CWO:		
W C:		
REQ'D:		
REWORK:		
CL NO:		
MAT'L:		

DET. NO.	AMT.	MAT'L.	STOCK SIZE OR PART NUMBER
103	2	STD.	Ø.375-16 WING NUT

REV	DESCRIPTION	DATE
B	ADDED SLOTS	06/28/05 BDT
	REDRAWN IN CAD	06/28/05 BDT
A	WAS Ø.500-13 THREAD	01/28/04 TJF

FAIRFIELD *GEARED FOR EXCELLENCE* LAFAYETTE, INDIANA U.S.A

TOOL NAME: LEAK TEST

ADAPTER PLATE

ALL LOOSE DETAILS TO BE STAMPED WITH THEIR RESPECTIVE NUMBERS - BREAK ALL CORNERS EXCEPT CUTTING EDGES

TOLERANCE ON DIMENSIONS UNLESS OTHERWISE SPECIFIED .XXX ±.005 .XX ±.015 .X ±.030

UNLESS OTHERWISE SPECIFIED ALL: CHAMFERS .06 X 45° - RADII .06 R. MAX.

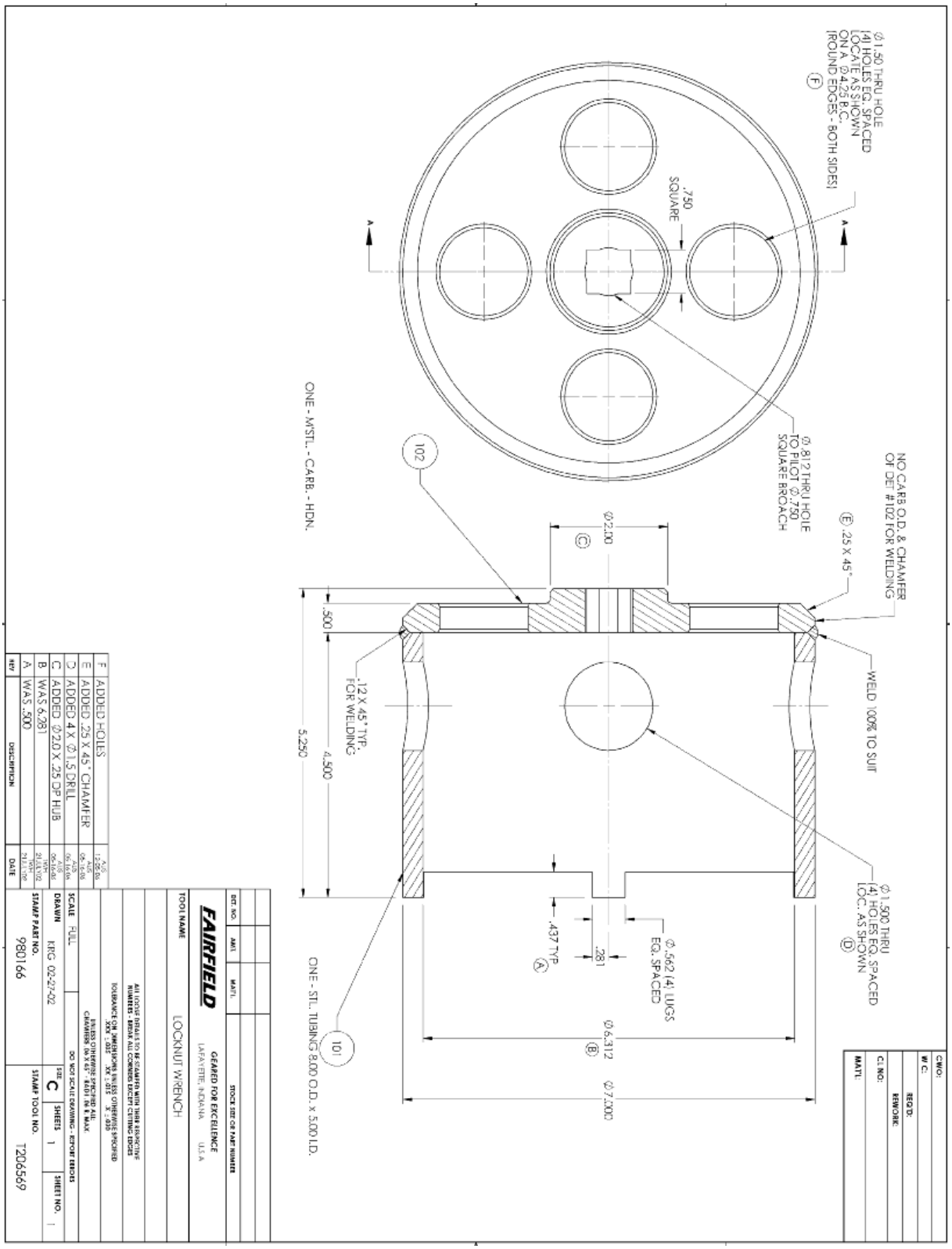
SCALE FULL — DO NOT SCALE DRAWING - REPORT ERRORS

DRAWN RKS 09/20/01 | SIZE B | SHEETS 1 | SHEET NO. 1

STAMP PART NO. C052C204000069

STAMP TOOL NO. T-205708

T206569 – LOCKNUT WRENCH



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Fax	Main Applications Engineering Sales and Service	(765) 772-4001 (765) 772-4011 (765) 772-4010
E-mail	Applications Engineering Sales	apps@fairfieldmfg.com sales@fairfieldmfg.com
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Oerlikon Fairfield
U.S. 52 South / P.O. Box 7940
Lafayette, IN 47903 USA
765-772-4000
www.oerlikon.com/fairfield